

## **A Preliminary White Paper:**

### Issues and Possible Alternatives for the Future Management of Atlantic Bluefin Tuna



Prepared by NMFS, Highly Migratory Species (HMS) Management Division  
for the HMS Advisory Panel Meeting, March 2012.

## Purpose of this Document

This is a preliminary white paper that **will be finalized by National Marine Fisheries Service (NMFS) and used in 2012 for scoping**, a public process during which NMFS will consider a range of issues and objectives, as well as possible alternatives for an Amendment to the Consolidated Highly Migratory Species (HMS) Fishery Management Plan (FMP) (Amendment 7). The options for management measures shown are not comprehensive, but are **intended as a basis for further discussion and refinement of the objectives and measures**.

The contents of this document are based upon the written and oral comments, suggestions, and discussions since 2009 regarding the management of bluefin tuna (BFT) by various members of the BFT fisheries, the HMS Advisory Panel, interested organizations, members of the public, and NMFS. In preparation for use in formal scoping, which has not yet begun, **this preliminary white paper will be modified based on additional input from the HMS Advisory Panel and further consideration by NMFS**. Given the amount of consideration that many of the issues have received already, scoping for Amendment 7 will begin with a detailed discussion of management measures instead of simply a list of objectives or an outline of potential management measures. NMFS believes it will be more efficient to **build upon previous discussions**, and may enable more effective and focused development of alternatives for analysis following scoping.

## Structure of this Document

Background (Section 1) and objectives (Table 1) are followed by information on possible management measures. The information on measures is first presented in summary form (Table 2), individual measures are then described (Section 4), and then combinations of potential suites of measures are shown in tables (Tables 7 and 8) and discussed (Section 5).

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## BACKGROUND

### 1.0 Background

The Agency is in the process of examining the regulations that affect all BFT fisheries, both commercial and recreational, to determine if existing measures are the best means of achieving current management objectives and providing additional flexibility to adapt in the future. The Consolidated HMS FMP contains a broad range of management objectives including (but not limited to), to prevent overfishing of Atlantic tuna, rebuild overfished Atlantic HMS stocks, monitor and control all components of fishing mortality so as to ensure long-term sustainability of the stocks and promote Atlantic wide stock recovery, minimize bycatch, manage for continuing optimum yield so as to provide the greatest overall benefit to the Nation, minimize to the extent practicable adverse social and economic impacts, provide a framework to take necessary action under ICCAT recommendations, and simplify HMS management. The objectives and potential measures listed in this document are intended to be catalysts for scoping, and should not be viewed as the entire range of options NMFS is taking into consideration. NMFS requests comments and/or suggestions on any of management objectives referred to above, as well as any potential management measures that may achieve those objectives so they can be incorporated for future public input during the FMP Amendment Scoping process. Any objectives and/or measures considered in an amendment to the current Consolidated HMS FMP must be compliant with all applicable statutes including the Magnuson-Stevens Fishery Conservation and Management Act, the Atlantic Tunas Convention Act, as well as other domestic and international obligations such as the International Commission for the Conservation of Atlantic Tunas. In 2010, the International Commission for the Conservation of Atlantic Tunas (ICCAT) implemented Recommendation 10-03, stating that “All Contracting Parties, non-Contracting Parties, Entities and Fishing Entities shall monitor and report on all sources of BFT fishing mortality, including dead discards, and shall minimize dead discards to the extent practicable.”

The range of comments received on the 2011 BFT quota and Atlantic tuna management measures rulemaking (March 14, 2011; 76 FR 13583) (2011 Quota Rule) demonstrated the need for a comprehensive review of BFT management. Many comments raised issues that were outside of the scope of that rulemaking and would require more significant analyses because of the potential impacts on the fisheries and fishery participants. Some of the issues raised include: holding quota categories accountable for dead discards, changing domestic allocations among fishing categories, reducing BFT bycatch, modifying the permit structure for the fisheries, improved monitoring of catch in all BFT fisheries, providing incentives to the Longline category to reduce interactions with BFT, and reducing dead discards in the Pelagic Longline (PLL) fishery.

The 1999 Fishery Management Plan for Atlantic tunas, Swordfish, and Sharks (1999 FMP) allocated the annual U.S. BFT quota recommended by ICCAT to BFT fishing categories, based on landings from 1983-1991. Landings were the only portion of catch (i.e., catch = landings + discards) that were factored into the 1999 FMP percentage allocation analysis at that time, as discards were accounted for under a separate allowance per ICCAT recommendation structure. These allocations continued unchanged in the 2006 Consolidated HMS FMP. The separate dead

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discard allowance has since been eliminated and discards are to be accounted for within annual quota allocations. During the 2011 Quota Rule process, the adjusted quota for 2011 was insufficient to account for anticipated 2011 dead discards up front, while also providing base allocations for the categories per the percentages outlined in the 2006 Consolidated HMS FMP. Further, during other recent rulemakings and meetings of the HMS Advisory Panel, several related issues concerning dead discards in the PLL fishery have been discussed. These issues include the accounting for BFT landings relative to the FMP percentage allocations and the methodology used for estimating dead discards.

There were three factors that made the 2011 Quota Rule more challenging than other recent annual BFT fisheries specification rules. The factors were: 1) Adjustments to the ICCAT western Atlantic BFT management recommendations (including reductions in total allowable catch (TAC), the amount of underharvest that can be carried forward (“carry-forward”), and the elimination of a dead discard allowance), 2) increases in domestic PLL dead discard estimates due to changes in estimation methodology and potentially an increase in BFT availability, and 3) recent increases in domestic BFT landings, including PLL landings.

In May 2011, in response to a petition to list BFT as threatened or endangered under the Endangered Species Act (ESA), NOAA determined that listing BFT as threatened or endangered under the ESA was not warranted, but listed BFT as a species of concern. This places the species on a watch list for concerns about its status and threats to the species. NOAA has committed to revisit this decision by early 2013, when more information is expected to be available about the effects of the Deepwater Horizon BP oil spill, the 2012 BFT stock assessment, and the 2012 ICCAT BFT recommendations.

At the September 2011 meeting of the HMS Advisory Panel, NMFS presented a summary of some of the recent issues as well as a white paper on BFT bycatch in the PLL fishery. The HMS Advisory Panel discussed issues related to the Longline category as well as the issues in the BFT fishery as a whole and offered an array of suggested measures for NMFS’ consideration as potential solutions, which are reflected in the measures discussed below, and summarized in Tables 7 and 8. As suggested by the HMS Advisory Panel, the wide range of management options listed is consistent with the suggestion to employ a broad suite of management measures.

On November 30, 2011, NMFS published a final rule (76 FR 74003) that implemented the following measures to increase management flexibility in the General and Harpoon categories: 1) Increased the General category maximum possible BFT daily retention limit from 3 to 5 fish (with limit adjustments to be executed via inseason actions as appropriate); 2) allowed the BFT General category season to remain open until the January subquota is reached, or March 31 (whichever happens first); and 3) increased the Harpoon category daily retention limit of 73 to 81” BFT from 2 to 4 fish. The objectives were to enable more thorough utilization of the available U.S BFT quota for the General and Harpoon categories, minimize discards, expand fishing opportunities in the winter General category fishery, and increase NMFS’ flexibility for setting the General category retention limit depending on available quota. Subsequently, the Center for Biological Diversity filed a lawsuit regarding that final rule, alleging that the final rule violates the Magnuson-Stevens Act, the National Environmental Policy Act, and the Administrative Procedure Act. That lawsuit is ongoing.

## OBJECTIVES

### 2.0 Purpose and Need for Scoping

In the final rule that specified the 2011 BFT quotas and management measures (76 FR 39019, July 5, 2011), NMFS stated (in response to the events of the last few years as noted in Section 1.0 of this document, and in response to the wide scope of comments received on the proposed rule) that the agency intended to review overall BFT management in the near future to determine whether existing measures need to be adjusted more broadly to meet the multiple goals for the fishery. NMFS intends to initiate formal scoping, a public process during which NMFS will consider the range of issues and objectives, as well as possible alternatives for a future Amendment to the Consolidated HMS FMP for BFT Management (Amendment 7) after the March 2012 HMS Advisory Panel meeting. This white paper would be used for scoping, pending modifications made by NMFS based on the March 2012 HMS Advisory Panel meeting and further agency deliberations.

### 3.0 Potential Objectives for Amendment 7 to Consolidated HMS FMP

NMFS developed the following potential objectives based upon the detailed suggestions and concerns expressed by the HMS Advisory Panel, members of the fisheries, and the public regarding management of the BFT fishery over the last few years. These specific objectives are within the context of the larger objectives of rebuilding the fishery, ending overfishing and meeting other legal obligations and conservation and management goals/requirements. There were common elements among the wide range of ideas for management measures to address multiple concerns. The potential objectives are as follows:

**Table 1. Potential Objectives for Amendment 7**

| Amendment 7 Potential Objectives |   |
|----------------------------------|---|
| 1                                | Optimize Fishing Opportunity and Account for Dead Discards  |
|                                  | Optimize the ability for all permit categories to harvest their full quota allocations; account for mortality associated with discarded BFT in all categories; maintain flexibility of the regulations to account for the highly variable nature of the BFT fishery; and maintain fairness among permit/quota categories; |
| 2                                | Enhance Reporting   |
|                                  | Improve the scope and quality of landings and dead discard data through enhanced reporting and monitoring to ensure that catch does not exceed the quota and to improve accounting for all sources of fishing mortality;  |



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|   |  |
|---|--|
| 3 | Reduce BFT Dead Discards   |
|   | Reduce dead discards of BFT and other non-target stocks and minimize reductions in target catch in both directed and incidental BFT fisheries; |
| 4 | Other  |
|   | Adjust other aspects of the 2006 Consolidated HMS FMP as necessary and appropriate.  |

### *Accounting for Discards vs. Reporting Discards, vs. Discarding*

Potential objectives one through three all address discarding, but focus on three different aspects of discarding. **Objective one** could address the fact that under the current fishery conditions and the Consolidated HMS FMP, dead discard accounting through the annual quota specification and accounting process is complex due to a variety of domestic and international obligations. In contrast, the focus of **objective two** could be to ensure the availability of dead discard information to support quota monitoring and accounting, because current procedures used in the monitoring and accounting are limited by the availability of dead discard information. The **third objective** focuses on reducing dead discards. It is useful to parse out the different aspects of dead discard issues because management measures may address different (or several) aspects. For example, it is useful to consider the accounting aspect of discarding in conjunction with the objective of optimizing fishing opportunity because they are both closely related to the quota allocation. Clearly, all three aspects of the dead discard objectives are closely related. A management measure that reduces discarding (objective 3) may not alleviate the magnitude of the accounting challenge (landings + discards = total quota) (objective 1), unless the reduction in dead discards is documented, reported, and monitored (objective 2).

## 4.0 Potential Management Measures for Consideration

The possible management measures described in this document are not comprehensive, but are intended as a basis for further discussion and refinement of both the objectives and measures to address such objectives. These measures were based upon BFT management discussions and measures suggested by the HMS Advisory Panel, fisheries participants, and other members of the public since 2009. **Table 2 below briefly lists for the reader the potential management measures included in this document.** Given the extensive discussion that many of the issues have received, scoping for Amendment 7 is expected to include a detailed discussion of management measures instead of simply a list of objectives or an outline of potential management measures to enable effective and focused development of alternatives for analysis following scoping. In the following section of this document, some of the measures are explored in more depth than others and include options that are listed below the measures, which represent associated subjects to explore. “Measures” are the different types of management tools, and

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“Options” represent different designs of the particular tool. For most measures, there is a description of the measure, justification (i.e., how it fulfills the objective), relationship to other measures, and a brief description of some “pros and cons.”

**Table 2. List of Measures**

|   |
|---|
| <b>Measures in Support of Objectives 1 – 3</b><br>(Optimize fishing opportunity and account for BFT dead discards, Enhance reporting, Reduce BFT dead discards) |
| Deduct BFT dead discards directly from each quota category  |
| Revise BFT quota allocations  |
| Enhance BFT reporting (consider needs for each quota category)  |
| Require retention of legal-sized BFT  |
| Eliminate target catch requirements of BFT for Pelagic Longline category  |
| Reduce BFT minimum sizes for commercial categories  |
| Modify tolerance rules for Purse Seine and Harpoon categories   |
| Facilitate a process for fishing industry communication of hot spots  |
| Specify maximum BFT catch limit for Angling category  |
| Implement Pelagic Longline BFT catch cap – region or individual   |
| Modify/Establish new Pelagic Longline closed areas (time and/or area)   |
| Modify BFT subquota rules   |
| <b>Measures in Support of Objective 4</b><br>(Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate)                                    |
| Establish quota and rollover for Northern albacore tuna   |
| Allow shore-based angler catch of BFT   |
| Modify current permit rules that require permit category changes to occur within 10 days  |
| Allow storage of unauthorized gear when fishing for BFT   |
| Define and authorize the use of bait nets (for bait-fish) while fishing for BFT   |

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### 4.1 Deduct BFT Dead Discards

Objective - Optimize fishing opportunity and account for dead discards.

Description – For each quota category, an estimate of BFT dead discards, or a proxy for such an estimate, could be deducted from the annual quota allocation “up front”, one of the methods allowed under existing regulations. In other words, accounting for estimated dead discards could be a part of the annual specification process, in conjunction with allocation of quota among the fishing categories according to the respective baseline allocations and applicable rollover. For each quota category for which dead discards are not currently estimated and deducted, a method could be developed to either estimate an amount of expected annual dead discards or to develop a proxy. The dead discard deduction could be specified as either a percentage of the category’s quota, or a specific amount. The estimate would be based upon the best available information regarding historical dead discard rates, with other possible considerations including the gear type, size of the quota, anticipated amount of fishing activity, location, season, and other relevant factors. If dead discards are highly uncertain and anticipated to change, a proxy of dead discards may be more appropriate than an estimate. Dead discard estimates or proxies would be modified to take into account new information resulting from improved reporting, or may be revised due to modifications in fishing practices or behavior.

Justification - In order to account for dead discards and maintain consistency with ICCAT Recommendation 10-03, an estimate of the amount of anticipated dead discards should be deducted from the annual quota allocation for each category up front. If no deduction for dead discards occurs, total landings would be constrained by the quota, but the risk in that approach would be that the sum of landings and dead discards could exceed the quota when complete information regarding dead discards becomes available. Making this deduction up front ensures that dead discards would be accounted for, and the adjusted quota would be set appropriately to help ensure the total quota is not exceeded.

Relationship to Other Measures – Because BFT management is a quota system in which a quota is allocated amongst different categories and landings and dead discards must be accounted for, the deduction of dead discards from the quota allocations is a key element of any suite of measures designed to modify BFT management. This measure is closely related to reporting measures because enhanced reporting could provide more accurate estimates of the level of dead discards. The limitations of the current information on discard rates may limit the methods that can be considered. Because the current allocation system was not developed with the intent of accounting for dead discards out of the category quota allocations, the current category allocations may not be compatible with an accounting system that includes deduction of dead discards. Therefore, a new requirement for deduction of dead discards may require a revision to the category allocations.

Pros – A systematic deduction for dead discards could help ensure that dead discards would be accounted for within the quota management system, and decrease the likelihood that total catch (landings and dead discards) would exceed the annual quota. A deduction of dead discards from the annual quota allocation to each category could serve as an incentive to reduce interactions resulting in dead discards and to report dead discard information in order to reduce the amount of the deduction. In a situation where there is high uncertainty or variability regarding a dead discard estimate, the use of a proxy could serve as a means to take into account the probability

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that some level of dead discarding does occur and should be accounted for. If, in a situation of uncertainty, there is no deduction for dead discards, it is equivalent to using a discard estimate of zero, which may not be realistic. The use of a low discard proxy for a particular category could represent a reasonable method to address the situation. For example, a proxy may be set at between one and five percent of the quota allocation. This potential measure is adaptive because the discard amounts could be modified on an annual basis, reflecting recent information and fishing practices. A deduction of dead discards from all quota categories may be more equitable than deducting discards from only certain categories.

Cons – The amount of information on historical dead discard rates as well as the accuracy and precision of such rates are variable across the BFT fisheries. It may be difficult to obtain robust information and there may be an incentive for fishermen to report information that underestimates or falsely characterizes dead discards in order to reduce the size of the deduction.

### 4.2 Revise Quota Allocations

Objective – Optimize fishing opportunity and account for dead discards.

Description - Modify current base allocations for quota categories (i.e., percentages of U.S. quota) in order to address limitations and issues that have resulted from the current allocation scheme under recent fishery conditions. Two basic strategies that could be considered: an immediate change in allocation, or a phased-in implementation of allocations over several years. Under each of these approaches, there are different options that could be used regarding the basis for reallocations. This document illustrates three potential options: (A) Revise quota allocations based upon two factors: current allocation and recent catch; (B) Create landings allocations (at a percentage lower than the current allocation) for the Longline, General, Angling, Purse Seine, and Harpoon categories to take into account anticipated landings and dead discards; or (C) Redistribute quota from quota categories for which recent catch has been low (relative to their landings and/or allocations) to categories that have insufficient quota to account for dead discards.

Justification - Under the Consolidated HMS FMP, each quota category is allocated a percentage of the total U.S. quota. Current allocations were based upon historical landings during the period 1983 to 1991, and do not take into consideration dead discards. The limitations of the current quota allocation system have become apparent recently as changes to the size and availability of BFT have changed over time, and ICCAT recommendations have changed. From 2004-2006, U.S. landings declined substantially; however, since 2006, there has been a general trend of some increase in landings from year to year although not equally across all categories. Concurrently, the percentage of underharvest that may be carried forward has declined (due to ICCAT recommendations), resulting in smaller adjusted quotas. Therefore, the relative amount of adjusted quota that may be utilized to account for dead discards has declined. Accounting for dead discards will continue to be challenging in the future unless domestic management measures are adjusted. If base allocations are modified in order to redistribute the allocation of BFT quota, accounting for discards could be accomplished in a straightforward manner and reduce uncertainty in the fisheries, while maintaining fishing opportunities and equity among the various user groups.

Relationship to Other Management Measures - Reallocation of quota could result in the redistribution of quota among categories, and could account for anticipated dead discards. The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure,

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catch caps, reduction in commercial minimum size, etc.). An alternative strategy could be to rely upon transferrable quota to enable temporary leasing or permanent sale of quota share that would allow for redistribution of quota among categories. A strategy combining both reallocation and trading/leasing may also be considered. Reallocation of quota is closely related to the reporting management measures because the need to account for dead discards is a key issue in current BFT management. In order to account for dead discards as well as optimize landings, accurate information regarding the amount of dead discards is important.

Pros and Cons – The pros and cons are described under the Options below.

### 4.2.1 OPTION A – Revise Quota Allocations Based on Current Allocation and Recent Catch

Objective - Optimize fishing opportunity and account for dead discards.

Description - Quota allocations could be revised based upon current allocation and recent catch. The relative weight given to each variable (current allocation and recent catch) could determine the size of the revised allocation. The total amount of dead discards accounted for under this measure would depend upon the weighting of the two factors (and the time period selected to represent recent catch). Under this example, due to the influence of recent catch, the Longline and Angling categories could have an increased allocation, while the General, Purse Seine, and Harpoon categories could have a decreased allocation. If the intent of reallocation is principally to account for dead discards, and not provide new fishing opportunities, categories with an increased allocation could be subject to a cap on landings. If the landings were capped at the current allocation levels (e.g., 8.1% for the Longline category), potential disparities in the changes to fishing opportunity among categories may be minimized. For instance, an increase in allocation may not result in any additional fishing opportunities, but may realign allocations to reflect interaction rates. Alternatively, a landings cap could be set at a level lower than the current allocation (i.e., less than 8.1%). An example of how a revised allocation could be calculated is as follows: For a weighting of 70% current allocation and 30% recent catch, the formula to derive the allocation would be:  $(.70 \times \text{current allocation}) + (.30 \times \text{recent catch})$ . Therefore, using the Longline category as an example, if the average BFT catch (landings and dead discards, not including NED) from 2008 through 2010 by the Longline category represents 22% of the total U.S. catch and the current Longline allocation is 8.1%, the revised allocation under a 70% :30% weighting scenario would be:  $(.70 \times .081) + (.30 \times .22) = 0.122$  (i.e., 12.2%). Essentially a revised Longline category allocation of 12.2%, would be established to account for landings and discards. Taking this example one step further, landings could be capped at 8.1% landings (the current allocation) at which point the PLL fishery could be closed to all HMS Fishing.

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**Table 3. Examples of Potential Revised Allocations Based Upon Current Allocation and Recent Catch**

| Category    | Current Allocation (%) | Revised Allocations (%) Based Upon Weighting of Current Allocation to Recent Catch |       |       |       | Landings Cap (current allocation) |
|-------------|------------------------|--|-------|-------|-------|-----------------------------------|
|             |                        | 70:30  | 50:50 | 30:70 | 10:90 |                                   |
| General     | 47.1                   | 44.0   | 42.0  | 39.9  | 37.9  | -                                 |
| Harpoon     | 3.9                    | 3.5  | 3.3   | 3.0   | 2.7   | -                                 |
| Purse Seine | 18.6                   | 13.1   | 9.5   | 5.8   | 2.1   | -                                 |
| Longline    | 8.1                    | 12.2   | 14.9  | 17.7  | 20.4  | 8.1                               |
| Trap        | 0.1                    | .07  | .06   | .04   | .02   | -                                 |
| Angling     | 19.7                   | 25.3   | 29.1  | 32.8  | 36.5  | 19.7                              |
| Reserve     | 2.5                    | 2.5  | 2.5   | 2.5   | 2.5   | -                                 |
| *Total      | 100                    | 100  | 100   | 100   | 100   |                                   |

\*Totals add up to slightly more than 100% due to rounding

**Justification** – The application of a formulaic approach to all quota categories may be perceived as fair, and explicitly addresses the two important factors regarding allocation, i.e., current allocations percentages in relation to recent catch.

**Relationship to Other Management Measures** - Reallocation of quota could result in the redistribution of quota among categories and account for anticipated dead discards. The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.). A catch cap for the Longline category may be necessary to limit catch to certain percentages (i.e., such as the 12.2 percent example above). An alternative strategy could be to rely upon transferrable quota to enable temporary lease or permanent sale of quota shares that would allow for redistribution of quota among categories. A strategy combining both reallocation and trading/leasing, may also be considered. Reallocation of quota is closely related to the reporting management measures because the need to account for dead discards is a key issue in current BFT management. In order to account for dead discards as well as optimize fishing opportunity, accurate information regarding the amount of dead discards is important. Reallocation of quota among categories could address the challenge of accounting for dead discards, but may not necessarily reduce discards unless implemented in conjunction with other measures.

**Pros** – This revised quota allocation may be closer to a system in which each category could more fully account for its own landings and dead discards. It may no longer be necessary to rely on the use of underharvest that has been carried forward from the previous fishing year in order to account for dead discards. A reallocation that reflects catch (landings and dead discards)



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could result in allocations that more closely align with recent levels of catch, and therefore categories may be better able to account for dead discards. A revised allocation that results in a larger allocation for the Longline category may help address the current challenge of accounting for dead discards. The means of developing revised allocations is clear and objective. Capping landings for the categories with increased allocations could ensure that such allocations would not represent increased allocations of landings, but would account for dead discards.

Cons – Under this example, some categories' allocations could increase (Longline, Angling) and some decrease (Purse Seine, General, Harpoon, Trap), and therefore there could be a loss of fishing opportunity for categories with a decrease in allocation. Reallocation may be controversial, and there may be the perception that historical fishing practices are not properly acknowledged or that previous undesirable fishing practices could be rewarded. The size of the changes to allocations may have to be relatively large in order to fully account for recent estimates of dead discards if this were to be the only measure implemented. In this example, if the weighting of current allocation to catch were 10%:90%, and the total quota (not including the 25-mt amount to account for bycatch of BFT in PLL fisheries in the NED gear restricted area) is 923.7 mt, the Longline category could be allocated approximately 189 mt. The average catch (landings and dead discards, not including NED), for the Longline category from 2008 to 2010 was 217 mt. However, as noted above, the measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.).

### 4.2.2 OPTION B – Create Landings Allocations to Account for Dead Discards

Objective - Optimize fishing opportunity and account for dead discards.

Description - Create landings allocations for the Longline, General, Angling, Purse Seine, and Harpoon categories to take into account anticipated dead discards. For example, set a landings allocation 20% lower than the current allocation for the Longline category; and 10% lower for the General, Purse Seine, Angling, Harpoon categories. The revised allocations could be landings allocations, and the Reserve category could be increased proportionally in order to account for dead discards. The reductions in allocations could be relative to the size of the current category allocation (not the total U.S. quota). The Longline category could be reduced more due to the relative magnitude of historical dead discards by that category. For example, a 10% reduction to the size of the current General category allocation (47.1%) would be a reduction of 4.71 %, with the revised landing allocation of 42.4% (47.1% - 4.71%). Depending upon the amount and quality of discard information available, the amount of reductions may be based upon discards estimates or proxies. The amount of total changes to allocations could determine the total amount of dead discards that are accounted for. This type of revision to the allocation system may be analogous to a quota specification method of deducting anticipated dead discards from the base allocation. During the fishing year, quota could be transferred from the Reserve category to other categories using the determination criteria located at 635.27((a)(8) (up to an amount equaling the current allocation) if there was information indicating low discard rates. The following example in Table 4 shows this method of revising allocations. **The percentage reductions below are not based on category-specific discard estimates but simply illustrate how the magnitude of reductions relate to the total amount of quota reduction (and discards accounted for).**

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**Table 4. Examples of Landings Allocations**

| Category   | Current Allocation (%) | *Current Allocation (mt) | Percent Reduction | Revised (Landings) Allocation (%) | Revised (Landings) Allocation (mt) | *Net Reduction (mt) |
|--|------------------------|--------------------------|-------------------|-----------------------------------|------------------------------------|---------------------|
| General  | 47.1                   | 435.1                    | 10%               | 42.4                              | 391.6                              | 43.5                |
| Harpoon  | 3.9                    | 36.0                     | 10%               | 3.5                               | 32.3                               | 3.7                 |
| Purse Seine  | 18.6                   | 171.8                    | 10%               | 16.7                              | 154.3                              | 17.5                |
| Longline   | 8.1                    | 74.8                     | 20%               | 6.5                               | 60.0                               | 14.8                |
| Trap   | 0.1                    | 0.9                      | (none)            | (same)                            | 0.9                                | 00                  |
| Angling  | 19.7                   | 182.0                    | 10%               | 17.7                              | 163.5                              | 18.5                |
| Reserve  | 2.5                    | 23.1                     | (increase)        | 12.7                              | 117.3                              | Na                  |
| Total amount of quota reduction (discards accounted for) |                        |                          |                   |                                   |                                    | 98 mt               |

\*Current Allocation and Net Reduction based on total quota of 923.7 mt

Justification – The method of allocation may be perceived as fair because all allocations would be reduced in order to take into account anticipated discards fishery wide.

Relationship to Other Management Measures – The net effect of this measure may be similar to deducting dead discards during the annual specification process, but could rely on revision of the quota allocations instead to account for dead discards. Reallocation of quota could result in the redistribution of quota to the Reserve to account for anticipated dead discards. The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.). An alternative strategy could be to rely upon transferrable quota to enable temporary lease or permanent sale of quota share that would allow for redistribution of quota among categories. A strategy combining both reallocation and trading may also be considered. Reallocation of quota is closely related to the reporting management measures because the need to account for dead discards is a key in current BFT management. In order to account for dead discards as well as optimize fishing opportunity, accurate information regarding the amount of dead discards is important.

Pros - All categories with substantive allocations could transition to landings allocations and therefore take into account dead discards. The amount of reduction from the current allocation could take into account historical or anticipated dead discards. There could be improved alignment between the amounts of allocation and recent catch (landings and dead discards). Increasing the amount of quota in the Reserve may facilitate flexibility and could provide available quota for other domestic objectives.

Cons - All categories could have reduced landings potential relative to the status quo. The magnitude of the reductions may have to be relatively large in order to account for recent estimates of dead discards. Also, dead discard information is not equally available for all gears/fisheries. In this example, the reduction in allocations (and increase in the Reserve quota to account for dead discards) represents approximately ten percent of the total U.S. quota. Based on the current quota of 923.7 mt, this could account for approximately 98 mt of dead discards. However, as noted above, the measure may not need to account for all anticipated discards if



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implemented in conjunction with a measure that reduces discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.). An increased reliance on the Reserve category may make inseason management more influential. Because the quota allocations could be revised, this measure may be a less flexible means of accounting for dead discards than deducting dead discards as a part of the annual quota specification process (as described above).

### 4.2.3 OPTION C – Redistribution of Quota Among Categories

**Objective** - Optimize fishing opportunity and account for dead discards.

**Description** – Starting from the current allocations, quota could be redistributed from one category to another category in order to account for anticipated dead discards, and align the quota with recent levels of catch (landings and dead discards). For example, in order to account for dead discards and align quotas with recent catch, quota could be redistributed from quota categories for which recent catch has been low relative to their allocations to categories that have insufficient quota to account for catch (i.e., from the Purse Seine category to the Longline category). This option assumes that no dead discards are accounted for through the use of quota that is carried forward from one year to the next. A phased-in approach could include a step-wise reduction or increase in quota allocations over several years. Because the intent of reallocation could be to account for dead discards only, and not provide new fishing opportunities, categories with an increased allocation could be subject to a cap on landings. The amount of dead discards that could be accounted for could determine the amount of allocation change. In the example below, 14% of the total quota could be reallocated from the Purse Seine category to the Longline category ( $.14 \times 923.7 \text{ mt} = 129 \text{ mt}$ ). Therefore, approximately 129 mt of dead discards could be accounted for (under this scenario of a total quota of 923.7 mt). The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.).

**Table 5. Examples of Revised Allocations Based Upon Direct Redistribution**

| Category    | Current Allocation | Revised Allocation | Landings Cap (current allocation) |
|-------------|--------------------|--------------------|-----------------------------------|
| General     | 47.1               | same               | -                                 |
| Harpoon     | 3.9                | same               | -                                 |
| Purse Seine | 18.6               | 4.6                | -                                 |
| Longline    | 8.1                | 22.1               | 8.1                               |
| Trap        | 0.1                | same               | -                                 |
| Angling     | 19.7               | same               | -                                 |
| Reserve     | 2.5                | same               | -                                 |

**Justification** – This method of allocation may be perceived as fair because potentially only two quota categories would be impacted, and it may be a simple method.

**Relationship to Other Management Measures:** Reallocation of quota could result in the redistribution of quota among categories, and account for anticipated dead discards. The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.). An alternative strategy could be to rely

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upon transferrable quota to enable temporary or permanent redistribution of quota among categories. A strategy combining both reallocation and trading/leasing may also be considered. Reallocation of quota could be closely related to the reporting management measures because the need to account for dead discards is a key issue in current BFT management. In order to account for dead discards as well as optimize fishing opportunity, accurate information regarding the amount of dead discards is important.

Pros - Depending upon the amount of anticipated dead discards, and the size of the shift in quota, this option could account for most or all of the anticipated dead discards from the PLL fishery in some years. The method is simple, and the revised allocations would not rely upon more complex formulas or data. The size of change in allocation could reflect a particular amount of dead discards. Capping Longline category landings at 8.1 % could minimize the potential that the increased quota for the Longline category would create inequities among categories. The net result could be increased alignment between allocations and recent catch.

Cons - The Purse Seine category could be affected disproportionately due to its reduced allocation. The Purse Seine category may be unable to harvest BFT in an amount that approaches their historical harvest level. The alignment that could exist between the revised allocation for the Longline category (designed to account for a particular amount of dead discards, based upon the current overall quota) and anticipated dead discards may not be sustained under a larger or smaller U.S. quota (i.e., as the stock size increases, the amount of discards by PLL vessels could still exceed the adjusted Longline Category quota, unless a catch cap is in place).

### 4.3 Enhanced Reporting

Objective – Enhance Reporting of Landings and Dead Discards

Description - All permit categories could report all sources of fishing mortality, including discards (live and dead). These measures could be targeted to the some or all permit categories, which currently have different reporting requirements. The measures could rely on non-paper reporting, utilizing current technology (for example the Automated Landings Reporting System or other tools). Examples of possible measures are listed in Table 6.

Justification - These measures would be designed to be consistent with ICCAT Recommendation 10-03, paragraph 18 (regarding reporting). In order to account for dead discards as well as optimize fishing opportunity, accurate information regarding the amount of dead discards continues to be important. Enhanced reporting could improve the monitoring of the fisheries and optimize the level of catch by increasing the likelihood that the desired amount of total catch would be attained but not exceeded.

Relationship to Other Management Measures - Measures to enhance the reporting of dead discards could support the measures to reduce dead discards and optimize fishing opportunities.

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**Table 6. Examples of Potential Enhanced Reporting Measures – Organized by Permit Category**

| Permit Category  | Current Status:<br>HMS Principal Reporting<br>Tool  | Potential Enhanced Reporting<br>Measures  |
|------------------|---|---|
| General          | Dealer  | Automated Landings Reporting System – report discards; non-HMS vehicles (e.g., Vessel Trip Reports)   |
| Longline         | Dealer, Logbook, Observers  | Increase observer coverage; Electronic monitoring of catch; or submission of data via VMS   |
| Angling          | Large Pelagic Survey (LPS); Automated Landings Reporting System; State Reporting Programs (MD, NC, <i>MA in development</i> ); Tournament Reporting | Expanded LPS scope from Jun-Oct to May-Dec; Compile and make public in-season catch status info; Automated Landings Reporting System compliance (e.g., confirmation number or incentive program); |
| Charter/Headboat | Dealer, LPS, Automated Landings Reporting System, State Reporting Programs, Tournament Reporting  | Automated Landings Reporting System; logbooks – report discards   |
| Purse Seine      | Dealer  | Automated Landings Reporting System; logbooks – report discards   |
| Harpoon          | Dealer  | Automated Landings Reporting System; logbooks – report discards; non-HMS vehicles (e.g., Vessel Trip Reports)   |
| Trap             | Dealer  | Automated Landings Reporting System; logbooks – report discards; non-HMS vehicles (e.g., Vessel Trip Reports)   |

Pros – Additional information on dead discards and landings could improve quota management if information increases the accuracy or precision of the catch estimates, or may improve management by providing information more quickly. Improved quota management could result in increased fishing opportunity if the quota is managed more precisely, decrease the likelihood that catch would exceed the quota, reduce management uncertainty, and support the biological

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objectives of the FMP. Reporting requirements such as those noted above have been successfully implemented in other fisheries.

Cons – Additional reporting requirements may be difficult and costly to implement for NMFS and/or fishery participants, and compliance with requirements may be inadequate to achieve the objective of improved quota management.

### 4.4 Mandatory Retention of Legal-Sized BFT

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – The Longline category could be required to retain all legal-sized BFT.

Justification – In conjunction with a Longline category catch cap (as discussed in section 4.10 below), mandatory retention of legal-sized BFT may reduce discarding.

Relationship to Other Management Measures – This measure could be used in conjunction with a catch cap, and may be necessary in order to increase the effectiveness of a Longline category catch cap, or other catch limitation. In order to minimize any incentive to target (or not avoid) BFT, a threshold amount of BFT could be set, beyond which revenue generated by the sale of BFT may not go to the vessel but could be designated for a particular use such as funding observers or research. This measure is also related to reporting.

Pros – This measure could reduce dead discards and prevent high-grading of fish by requiring retention of legal-sized fish. The measure may help ensure that legal-sized BFT are not discarded as a catch cap is approached, and count toward the catch cap or limit. Reduction of dead discards reduces waste and increases revenue. This measure may be resource neutral if caught BFT that may otherwise be discarded, are instead kept.

Cons - It could be difficult to enforce this measure. Mandatory retention may not work in conjunction with a target catch requirement, because the target catch requirement, which limits retention may work counter to the mandatory retention.

### 4.5 Eliminate Target Catch Requirements for Longline Category

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - The current target catch requirements for PLL vessels could be eliminated

Justification – This measure could work in conjunction with a catch cap and mandatory retention of legal-sized fish in the Longline category. Elimination of the target catch requirements could reduce dead discards because vessels may have more flexibility regarding the amount of BFT they could retain on a particular trip, or when combined with mandatory retention, eliminate all discards that meet minimum size requirements. A regional or individual catch cap could provide an incentive to avoid BFT because fishing for all HMS could stop or be curtailed once the cap was attained (i.e., the use of PLL gear would be prohibited).

Relationship to Other Management Measures - This measure could work in conjunction with an annual Longline category catch cap and mandatory retention of legal-sized BFT, and could address fishing behavior on the scale of an individual trip to reduce dead discards of BFT. A related alternative could be a modification of the current target catch requirements instead of elimination. For example, a reduction from the largest current target catch requirement of 30,000 lb. target catch (associated with an allowable landing of 3 BFT) to a lower amount (e.g., 10,000 lb. target catch requirement).

Pros - PLL vessels could be able to fish for their target species in a more flexible manner. The constraints and some of the incentives associated with the target catch requirement may be

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eliminated, but there could still be an incentive to avoid BFT if mandatory retention of legal-sized BFT and a regional or individual catch cap is in place. For example, a vessel that has caught some BFT but has insufficient target species to meet the target catch requirement may no longer have to choose between discarding BFT or fishing for more target species, but may be able to stop fishing with any ratio of BFT to target catch on board. This measure may be resource neutral, provided the overage catch cap functioned to limit overall catch at the desired level.

Cons - The incentive to avoid BFT for a particular vessel may be lessened by the removal of the target catch requirement, depending upon the type of catch cap that is in place, the amount of BFT caught by the fishery as a whole (in relation to the catch cap), and the behavior of the individual fisherman. For example, if a vessel owner is planning only a limited number of trips, he or she may not take into consideration whether or not the overall BFT catch cap is being approached.

### 4.6 Reduce Commercial Minimum Sizes

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - For the commercial General, Harpoon, Longline, and Purse Seine categories, and for the Charter/Headboat category when fishing commercially, the current minimum size could be reduced to a size (to be selected between the ICCAT minimum size of 47 and 73 inches; for example, 65 inches), or a certain number of BFT (of the daily retention limit) could be allowed to be between 47 and 73 inches (currently the large school and small medium size classes).

Justification – Reduction of the minimum size could reduce dead discards, and enable the sale of fish that would otherwise not be sold. This measure may not be justified for the Longline category in the Gulf of Mexico, because it may not reduce discarding (recent data indicates that most discarded fish have been above the current minimum size of 73”).

Relationship to Other Management Measures – This measure could augment other measures designed to reduce dead discards and facilitate overall accounting for dead discards. This measure could function in conjunction with a specific quota allocation of a specific size class, in order to limit potential impacts to the size structure of the population. Given that this measure could increase fishing mortality on a higher proportion of immature fish, it may be prudent to link this measure to enhanced reporting requirements in order to obtain better catch information.

Pros – Dead discards within a new allowed size range could be reduced, and the portion of dead discards that would have died would not represent additional fishing mortality. There could be decreased waste for vessels, and increased revenue for vessels and dealers.

Cons – Due to the overlap in allowed size range with the recreational fishery, there may be gear conflicts and increased competition between the commercial and recreational categories. There may be increased fishing mortality on the small medium size class, with the potential to negatively affect the size structure of the population and slow rebuilding. It is possible that there may be no net reduction in dead discards, but simply a shift in the size of discarded fish. If a larger range of size classes are allowed to be harvested, the commercial fisheries may catch their quotas more quickly. The incentive to avoid BFT may be reduced.

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### 4.7 Modify Tolerance Rules for Purse Seine and Harpoon Categories

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – The annual tolerance of large medium BFT (no more than 15% of the total amount of giant BFT (81 inches or greater) per year, by weight for the Purse Seine category) or the Purse Seine tolerance for targeting mixed tuna schools (BFT smaller than 73 inches may not constitute more than 1% per trip of the skipjack and yellowfin tuna, by weight) could be modified. The amount of large medium BFT that the Purse Seine category is allowed to harvest could be increased in order to reduce dead discards and/or the tolerance for possession of small BFT could be increased to allow the fishery to pursue schools of mixed tuna species. For the Harpoon category, NMFS could establish inseason management authority to modify the Harpoon category tolerance of large medium BFT within a range of zero to four large medium BFT. Currently, the incidental limit of large medium fish is four, per the November 30, 2011 final rule (76 FR 74003).

Justification – Modification of the tolerances could reduce discards and provide more flexibility in optimizing fishing opportunities in the Harpoon category and could reduce potential discards for the Purse Seine fishery.

Relationship to Other Management Measures - If the base allocation for the Purse Seine category is reduced, this measure could mitigate the negative impacts of such a measure in addition to reducing dead discards.

Pros - The measure may reduce dead discards and increase revenue for Purse Seine vessels, and mitigate potential negative impacts of a reduction in base allocation for such vessels. Providing NMFS the inseason authority to adjust the Harpoon category tolerance could enable more precise inseason management and could help prevent catch (landings and dead discard) from exceeding the Harpoon quota.

Cons – Modifications to the tolerances for the Purse Seine category may result in an increase in fishing mortality of smaller BFT, with the potential to negatively affect the size structure of the population and slow rebuilding. Purse Seine vessels may be more likely to fish on mixed schools of fish. There could be a larger overlap with the recreational fishery of the size classes. Even with the ability to adjust the tolerance limits in the Harpoon category, there still could be mortalities on BFT below the minimum size, or on BFT that would exceed the tolerance limit.

### 4.8 Facilitate a Process for Fishing Industry Communication of “Hot-spots”

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – In conjunction with a catch cap, NMFS could work with the PLL fishery to facilitate the development of a fishery-based “BFT avoidance system” where PLL vessels voluntarily provide real-time information regarding the location of BFT, through e-mails sent via VMS for example. A fishing industry organization or a third party such as an academic or research organization could compile the fleet information and email the locations of hot-spots back to the fleet. Based on this information, Longline category vessels could avoid fishing in locations with relatively higher availability of BFT.

Justification – Enhanced knowledge of the location of BFT may enable vessels to avoid interactions with BFT. An analogous system has been useful in other fisheries, and the use of a



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third party could address sensitivities in sharing this information or may preserve the integrity of the information shared by the fleet.

Relationship to Other Management Measures – In association with a Longline category catch cap, there may be increased incentives for the PLL vessels to cooperate in order to avoid BFT. Under current regulations, there may not be adequate incentives to develop such a system.

Pros - This system could facilitate and encourage fishing vessels to alter their fishing location in order to avoid BFT, and therefore may reduce catch and dead discards of BFT and provide increased fishing opportunity for target species. The system would be voluntary, and therefore could be non-regulatory in nature and may foster cooperation.

Cons – It is unknown whether this system could work, or whether there would be adequate incentives for cooperation. A communication system such as this, which has worked for the Atlantic sea scallop fishery (to avoid bycatch of yellowtail flounder) may not work for the Longline category due to the large geographic area covered by the fishery, the association of HMS with dynamic oceanographic features vs. particular areas, and the high variability of the location of BFT and encounter rate with pelagic longline gear. There may also be monetary or technical challenges to the development of this system. Although electronic communication is swift, there is significant time and labor involved in the deployment and retrieval of longlines, and therefore, adjustment of fishing locations may only be practical prior to setting gear. Lastly, there may be a reluctance to share such information if it is perceived that doing so requires sharing private information or erodes competitiveness.

### 4.9 Maximum BFT Catch Limit For Angling Category

Objective – Reduce BFT Dead Discards

Description – A maximum catch limit for BFT (including kept and discarded fish) could be set for the Angling category and for the Charter/Headboat category (when fishing recreationally), in order to limit the number of fish caught and released and therefore post-release mortalities. The catch limit could be specified in relation to the retention limit (e.g., two, or three times the retention limit). For example, if the retention limit is one BFT per trip and the maximum catch limit was set at twice the retention limit, the vessel could catch a total of two fish, and therefore could retain one legal-sized fish and release one fish, or release two fish.

Justification – Meaningful reductions in the number of BFT caught and released which could result in post-release mortalities may be achievable. Measures for reducing activities that may result in dead discards or post release mortality should be considered for all quota categories.

Relationship to Other Management Measures – This measure could augment the measures to reduce dead discards applicable to the commercial categories.

Pros – This restriction could limit the amount of potential post release mortalities or dead discards on a particular trip, due to size restrictions, improper gear, or high-grading (or other reason). Such a measure may provide incentives to limit excessive discarding in certain situations, and may reduce the amount of overall discards.

Cons – This measure could be difficult to enforce, and may be perceived by recreational fishermen as excessively restrictive or contrary to the positive incentives and fishing practices inherent in current tag-and-release or catch-and-release programs.

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### 4.10 Longline Catch Cap

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - Implement a cap for the Longline category in order to restrict or stop fishing altogether when the annual Longline BFT allocation has been caught. The measures, which could be triggered by the catch of a predetermined level of BFT, could result in the restriction or cessation of the use of pelagic longline gear for some specified period. Ideally, a cap should achieve a balance between allowing the retention of incidentally caught BFT, preventing a directed fishery, and reducing dead discards while minimizing lost fishing opportunity for target species.

Justification - Under the current Consolidated HMS FMP, vessels in the Longline category are restricted in the number of BFT they may retain per trip (target catch requirements), based upon the amount of target species caught. Although this limits the amount of BFT that are retained on a particular trip, it does not limit the overall amount of BFT that are retained on an annual basis, or limit the level of dead discards. A catch cap could provide NMFS the authority to curtail fishing effort in the Longline category once the threshold amount of catch has been attained. This authority would be in contrast to NMFS' current regulations, which are limited to prohibiting *retention* of BFT by the Longline category, and therefore could be more effective at reducing dead discards.

Relationship to Other Management Measures - The effectiveness of a catch cap could be enhanced by other associated measures, such as mandatory retention of legal-sized BFT, and elimination of target catch requirements. Catch caps are also closely related to the reporting management measures because in order to have an effective catch cap that both limits catch and maximizes target species fishing opportunity, both landings and dead discards need to be reported and monitored accurately. Catch caps would not prevent catches of atypically large numbers of BFT. Such sets, could be subject to different restrictions than lesser, more routine amounts of catch.

Pros - By restricting or eliminating fishing opportunity when a threshold level of BFT has been caught, discards, and in turn, dead discards could be reduced.

Cons – Restricting or eliminating fishing opportunity may reduce the catch of target species (i.e., swordfish or Bigeye, Albacore, Yellowfin, and Skipjack tunas (collectively referred to as 'BAYS') or impose additional costs on vessels, for instance, if the vessel had to fish in an area that is further away, etc.).

#### 4.10.1 OPTION A - Individual Catch Cap (Catch Share)

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – An individual vessel could be allocated a portion of the Longline category BFT quota. When the vessel has caught its allocation, it may no longer use pelagic longline gear. The allocation could be transferable among vessels within the Longline and Purse Seine (which also has vessel allocations) categories.

Justification - A catch cap that is set at the level of an individual vessel (individual catch cap; ICC) could provide strong incentives to reduce dead discard at the level of an individual vessel. An allocation that is transferrable among permit categories could enable temporary or permanent reallocation of quota. The ability to transfer could provide flexibility and maximize opportunity



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for fishing opportunity and revenue, and make it more likely that allocations may be aligned with catch (i.e., vessels that catch BFT may be able to obtain quota from those that do not encounter BFT). Without trading, there would be no means to adjust the amount of quota an individual vessel has, and avoid a situation where some vessels have more quota than they need and some vessels have less quota than they need.

Relationship to Other Management Measures - An alternative strategy could be to rely upon reallocation of base quotas to achieve permanent redistribution of quota among categories. The effectiveness of a catch cap could be enhanced other associated measures, such as mandatory retention of legal-sized BFT, and elimination of target catch requirements. Catch caps are also closely related to the reporting management measures because in order to have an effective catch cap that both limits catch and maximizes target species fishing opportunity, both landings and discards need to be reported and monitored accurately. Time/area closures may also augment catch caps, because catch caps would not prevent ‘disaster sets.’ Time/area closures may also reduce the likelihood of disaster sets.

Pros - By restricting or eliminating fishing opportunity when a threshold level of BFT has been caught, dead discards could be reduced. Individual vessel accountability may help ensure that a vessel’s fishing opportunity would not be affected by the behavior of other vessels or the fishery-at-large. Individual catch caps may enable trading quota among individuals and increased economic efficiency. An individual catch cap may provide a strong incentive for the individual to modify fishing behavior to avoid potential BFT interactions. A potential benefit associated with trading/leasing may be each category preserves their interest in the fishery either through monetary compensation or remaining active in directed fisheries.

Cons - Elimination of fishing opportunity when the catch cap is attained could result in a reduction of catch of the target species. Implementation and monitoring of an Individual Catch Cap may be more complex to administer than a fishery-wide catch cap. There may be perceived winners and losers as a result of the allocation of ICCs, and potential economic efficiencies may come at a cost. ICCs may not foster cooperative efforts to avoid BFT among fishermen. New issues to address may arise, such as potential consolidation of catch shares if they are tradable. The creation of a market for BFT allocation may create an advantage for well-capitalized businesses, and be perceived as unfair by relatively small businesses. Secondly, if shares are tradable, the creation of a market for BFT allocation for the Longline and Purse Seine categories may be perceived as unfair, due to the many differences in the characteristics of the two fisheries. For example, if the Purse Seine fishery continues to be relatively inactive, the market for BFT quota may be skewed between the Purse Seine and Longline categories (i.e., there may not be a ‘level playing field’). There may be stock effects associated with trading between the Purse Seine and Longline categories, due to differences in size selectivity and dead discard rates between the two categories.

### *4.10.1.1 ALLOCATION SUB-OPTION – Based on Historical Catch*

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – The allocation of the ICC to a vessel could be based upon the vessel’s historical catch or landings of BFT. It may be necessary to implement a new control date for the Longline category that could serve as a reference date, and could serve to discourage speculative fishing behavior in the fishery. The control date may be used for determining the level of historical

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participation in the fishery, and NMFS may choose to give variably weighted consideration to fishers active in the fishery before and after the control date. Fishers would not be guaranteed a level of future participation in the fishery, regardless of their level of participation in the fishery before or after the control date. Establishment of a control date would not commit NMFS to adopting this management measure or developing any particular criteria for participation in the fishery. Although there is a currently established control date of September 1, 1994, that control date was implemented to address issues relevant at that time. It may be desirable to establish a more recent control date, in light of current issues and objectives in the fishery, and the amount of time that has elapsed since 1994.

Justification – Basing an ICC allocation on a vessel’s historic catch is consistent with the way many fisheries allocate catch shares.

Pros - Future fishing opportunity may be similar to historical fishing opportunity for a vessel. Basing the current allocation on historical fishing behavior may be perceived as a fair method of allocating quota, and depending upon the criteria or allocation formula used, could treat different patterns of historic catch differently in order to provide incentives or differential opportunities. Establishing a revised control date could facilitate the development of this measure by providing a reference date that is relevant to the current fishery and discourage speculative fishing behavior.

Cons - Basing future fishing opportunities on historical fishing may be problematic, if the future fishery is not similar to the historical fishery. Basing the current allocation on historical fishing behavior may be perceived as unfair, and may be controversial. Depending upon the allocation formula, there may be a perception that vessels are being rewarded for catching BFT in the past. It may be administratively burdensome for NMFS to determine allocations based upon historical data. The use of such data (for allocation purposes) may be different from the intended purpose of the data (catch monitoring). Currently inactive vessels may be eligible to receive quota. Trading of quota may resolve some issues. Establishing a control date may be controversial and confusing, even though by itself, a control date has no regulatory effects.

### *4.10.1.2 ALLOCATION SUB-OPTION – Allocation Evenly Distributed Among Permitted Vessels*

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – Eligible vessels could each be allocated an equal share of the Longline category subquota, which could be calculated by dividing the subquota by the number of eligible vessels. Eligible vessels could be defined as all permitted vessels, or there could be an eligibility criteria that a vessel must be an “active” vessel by setting a threshold of a level of historical or recent catch.

Justification – Allocation of quota equally is a valid allocation strategy.

Pros – Allocation of equal shares is easier to administer because it is not based upon historical data, and may be perceived as being more fair in light of the potential difficulty in developing an allocation formula based on historical catch. Given that the implementation of tradable BFT quota could create a highly competitive market for BFT quota, allocation of equal amounts may mitigate some of the economic advantages in the BFT allocation market that may be associated with well-capitalized businesses. If quota were allocated only to active vessels, such vessels may not have a smaller, ‘diluted’ share of the quota. Vessels that were not allocated quota could still purchase quota.

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Cons – If all permitted vessels are eligible to receive quota, inactive vessels could be allocated quota and there may not be alignment between the amount of allocation and the amount a vessel “needs” in order to fish. Although trading of quota may resolve such issues, there could be costs associated with such trading and alignment.

### 4.10.2 OPTION B – Catch Cap by Region

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - Create BFT catch caps for the relevant geographic regions (ICCAT BFT regions defined for the Longline category; Caribbean, Gulf of Mexico, Florida East Coast, South Atlantic Bight, Mid-Atlantic Bight, Northeast Coastal, and Northeast Distant). When NMFS projects that the catch cap for a region has been caught, fishing with pelagic longline gear could be restricted or prohibited. When fishing with pelagic longline gear has been prohibited, the use of other gear such as green-stick gear may continue.

Justification – A regional BFT catch cap could result in effective limits on the total dead discards by the Longline category, but also take into consideration regional differences in the fishery and optimize fishing opportunity.

Pros - By restricting or eliminating fishing opportunity when a threshold level of BFT has been caught, dead discards could be reduced. A catch cap by region could have several advantages. Principally, having multiple caps instead of one could be responsive to regional catch and could impact only those geographic areas where the bycatch is occurring. Therefore, multiple caps may minimize the negative economic impacts that could result from restrictions on fishing effort. The amount of BFT allocated to a specific region could take into account the effectiveness of time/area closures and gear restrictions in that area, as well as any patterns in the amount of bycatch by area. Lastly, the management could align well with the data associated with the Longline category, which is collected and organized by region. A catch cap by region may not have the complexity or controversiality associated with individual catch caps.

Cons - It may be difficult to divide up the Longline category quota into regions based on historical information (or some other criteria). In a particular year, the regional caps may not align with fish availability due to the annual variability of BFT movement. To address this issue, NMFS may need the authority to transfer among geographic regions within the fishing year, and such a system may be controversial and complex. The scope and cost of NMFS’ administration of quota management could increase.

### 4.10.3 OPTION C – When Threshold Reached, Use of PLL Gear Prohibited

Objective - Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - When NMFS projects that a specified percentage of the cap is caught (e.g., 90 to 100%), the use of pelagic longline gear could be prohibited throughout the relevant region. The use of green stick gear could be allowed because it is a tended gear and therefore any incidentally caught BFT could be released with greater likelihood of survival.

Justification – Prohibition on the use of pelagic longline gear when the catch cap is caught could preclude any further interactions between pelagic longline gear and BFT in the relevant region. In contrast to greenstick gear, which is efficient at catching the target species with low bycatch, pelagic longline gear is not tended and is relatively inefficient. The catch rate of BFT by

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greenstick gear is low compared with pelagic longline gear, and bycatch mortality of released fish is likely lower due to the lower incidence of deep-hooking.

Pros - This sub-option is simple, and may provide the maximum amount of reduction in dead discards.

Cons - Because all fishing with pelagic longline gear could cease when it is projected that the catch cap has been caught, this option could reduce fishing opportunity for target species and reduce revenue more than a system that allows limiting fishing upon projection of attainment of the catch cap.

### 4.10.4 OPTION D – When Threshold Reached, Use of PLL Gear Restricted

Objective - Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description - When NMFS projects that a specified percentage of the cap has been caught (e.g., 80%), the use of pelagic longline gear could be prohibited within a sub-area of the region, but fishing with pelagic longline gear outside that sub-area within the region could be allowed. For each region, the sub-area that could close to pelagic longline gear use could be defined based on historical catch of BFT in the relevant region

Justification – This measure could be designed to achieve a reasonable balance between reducing dead discards and providing fishing opportunity. A restriction of the use of pelagic longline gear when a portion of the catch cap has been caught could prevent additional use of pelagic longline in the portion of the region with a highest likelihood of BFT interactions, but allow the use of pelagic longline gear to continue in other areas with a lower likelihood of BFT interactions.

Relationship to Other Management Measures – This measure may be characterized as “triggered closed areas,” and therefore these measures are closely related to seasonal or permanent closure areas, and should be considered in conjunction with closed areas. This measure is related to the reporting requirements because the current reporting system may not support this measure. This measure is very similar to Option C, but would only close a subset of the total area. Under this option, the threshold amount of catch that would trigger the closure of the area is set low, in order to allow for potential catch outside of the closed area.

Pros - Because this option could allow pelagic longline fishing within a geographic area that has not historically been a hot-spot for BFT, once the catch cap is reached, it could allow more fishing opportunity and may result in a better balance between reduction of dead discards and maintenance of fishing opportunities for target species.

Cons - The objective of this sub-option (a more customized system that enables more fishing opportunity) may be achieved by the regional specification of catch caps. In the context of this option of specifying catch caps by region, this sub-option may be duplicative, and overly complex. If BFT are encountered within the area where fishing continues, the reduction in BFT dead discards may not be as great, and could result in exceeding the cap (depending upon the percentage catch that triggers the closure and the amount of BFT encountered).

### 4.10.5 OPTION E –Atypically Large Catches of BFT by PLL

Objective - Reduce BFT Dead Discards and Optimize Fishing Opportunity

Description – This measure could address the situation of an atypically large catch of BFT in the context of a catch cap. A threshold level of BFT catch for a single set could be defined (for each

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geographic area if necessary), and rules developed that could address how the BFT was accounted for and what the restrictions would be. For example, an atypically large BFT catch could be defined as a particular number of BFT, such as the amount of BFT that is in the 90<sup>th</sup> percentile of BFT catch per set. A portion or all of the BFT catch on such a set could be attributed toward the Reserve category, or an amount that had been set aside from the Longline category quota for this purpose.

Justification – The situation where a longline set catches an atypically large number of BFT, could be subject to different restrictions than lesser, more routine amounts of catch in order to provide some flexibility to prevent premature closure of the Longline category (or a segment of the fishery) when operating under a catch cap. A large catch of BFT early in the season could close the fishery and have a disproportionate impact on the fishery. Without the flexibility provided by measures that address the situation of such sets, the costs associated with a catch cap in a particular year may outweigh the benefits.

Relationship to Other Management Measures – This measure could be considered in the context of a catch cap, and could require additional reporting requirements. Special rules for atypical sets may not be necessary if other measures are implemented that enable reduction of dead discards or avoidance of BFT. It is possible that the development of special rules regarding such sets could impact the methods NMFS uses to estimate total discards.

Pros - Because this option could provide some flexibility for the Longline category to stay open despite a large BFT catch, it may better balance the objectives of reducing and accounting for BFT dead discards with providing fishing opportunity on target stocks than would a catch cap that provided no flexibility for such sets.

Cons – A set with an atypically large catch of BFT may be difficult to define, measures regarding such sets may be difficult to enforce, and the flexibility provided may only provide short-term relief from premature closure of the fishery (due to attainment of the catch cap).

### 4.11 Modification to Pelagic Longline Closed Areas

Objective – Reduce BFT Dead Discards and Optimize Fishing Opportunity.

Description – Modify contours of existing pelagic longline closed areas and/or implement new closure area(s) in a defined geographic area during a specified time period. NMFS has begun to look at preliminary logbook data of BFT interactions with pelagic longline (See Figures). As Amendment 7 develops, additional relevant information and issues will be examined, such as observer information, impacts on other species, and redistribution of fishing effort.

Justification – A time/area closure that applies to the use of pelagic longline gear may be effective in reducing dead discards of BFT, while limiting impacts on the catch of target species. The effectiveness of the measure depends upon the time and area of the closure coinciding with the presence of BFT within the closed area, as well as the availability of the target species in the area outside of the closed area. Closure of a geographic area in which there is a high likelihood of catch of BFT can effectively reduce dead discards, while minimizing disruption of the fishery.

Relationship to Other Management Measures – A closed area is closely related to a BFT catch cap, and other management measures that serve to modify fishing behavior in order to reduce dead discards. A triggered inseason closure of a predefined area, as described elsewhere in this document, is a similar measure with similar strengths and weaknesses. There may be a relationship to other management measures due to the potential impacts on bycatch rates of non-target species.



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Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### 4.11.1 OPTION A – Modify Northeastern U.S. Closed Area

Description – Modify the existing Northeastern U.S. Closed Area boundaries and/or the current time period (June). (See Figures 11 through 13 for relevant data).

Justification – Modification of the closed area (changing boundaries; expanding, or shrinking the area; or changing the timing) could result in a better balance in the reduction in BFT discards with minimizing reductions in target catch). If the area adjacent to the Northeastern Closed Area has a relatively high rate of interaction between BFT and pelagic longline gear, expanding the current closed area could reduce the number of such interactions and reduce dead discards. If historically, there are relatively few BFT within the current boundary during June (compared with areas outside of the Northeastern U.S. Closed Area), reducing the area could result in an increase in target catch, without a substantial loss of protection for BFT.

Relationship to Other Management Measures – A larger closed area that results in reduced dead discards may reduce the amount of dead discards that must be accounted for in the process of quota accounting.

Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a

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lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### 4.11.2 OPTION B – Modify the Charleston Bump Closed Area

Description - Modify the existing Charleston Bump closed area boundary and/or time period.

Justification – Modification of the closed area (changing boundaries; expanding, or shrinking the area; or changing the timing) could result in a better balance in the reduction in BFT discards with minimizing reductions in target catch). If the area adjacent to the current Charleston Bump Closed Area has a relatively high rate of interaction between BFT and pelagic longline gear, expanding the current closed area could reduce the number of such interactions and reduce dead discards. If historically, there have been relatively few BFT within the current boundary (compared with areas outside of the area), then reducing the area could result in an increase in target catch, without a substantial loss of protection for BFT.

Relationship to Other Management Measures – The measure may have little impact on other BFT management measures under consideration, however, the Charleston Bump Closed Area was implemented in order to reduce discards of undersized swordfish, sharks, billfish, and other species, and the impact on those species could be meaningful.

Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### 4.11.3 OPTION C – Implement a New Closed Area in the Vicinity of the Cape Hatteras Special Research Area

Description – Implement a new closed area (for a portion of the year or year-round) in the vicinity of the Cape Hatteras Special Research Area. The size, configuration, and timing of the closed area could depend upon the seasonality and location of the BFT interactions with PLL vessels, as well as data regarding target species and enforcement considerations. (See Figures 1 to 7 for relevant data).

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Justification – If the area in the vicinity of the Cape Hatteras Special Research Area has a relatively high rate of interaction between BFT and pelagic longline gear, creating a new closed area could likely reduce the number of such interactions and reduce dead discards.

Relationship to Other Management Measures – A new closed area that results in reduced dead discards may reduce the amount of discards that must be accounted for in the process of quota accounting.

Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### 4.11.4 OPTION D – Implement a New Closed Area in the Gulf of Mexico (GOM)

Description – Implement a new closed area (for a portion of the year or year-round) in the GOM, selected on the basis of interactions of pelagic longline gear with BFT) during peak abundance of BFT. The size, configuration, and timing of the closed area would depend upon the seasonality and location of the BFT interactions with pelagic longline gear, as well as data regarding target species and enforcement considerations. (See Figures 8 to 10 for relevant data).

Justification - If an area in the GOM has a relatively high rate of interaction between BFT and pelagic longline gear, creating a new closed area could likely reduce the number of such interactions and reduce dead discards. Furthermore, a closed area in the GOM may provide additional benefits to the stock if the closed area overlaps with spawning activity.

Relationship to Other Management Measures – A new closed area that reduces dead discards may reduce the amount of discards that must be accounted for in the process of quota accounting. In the 2006 Consolidated HMS FMP, NMFS considered certain PLL closures in the GOM, which effectively would have prohibited any Atlantic BFT harvest in areas of the GOM. These analyses also took into account the possible effects of area closures on bycatch of other target and non-target species due to the potential redistribution of fishing effort. NMFS examined a number of different closures in the GOM during a variety of time periods and assuming different scenarios for the redistribution of effort. The analyses concluded that, although some GOM longline closures had the potential to reduce the catch of Atlantic BFT, concomitant increases in catch of other species, including endangered sea turtles, overfished marlins, large coastal sharks, and pelagic shark species could be expected. Such negative ecological impacts would be in the form of increased bycatch and discards of these species due



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to effort shifting to open fishing areas outside of the GOM. As a result, NMFS did not implement any time/area closures for Atlantic BFT in the GOM. Specific details on these analyses and different scenarios considered can be found in the 2006 Consolidated HMS FMP. The impacts of a potential new closed area would need to be fully evaluated, in order to determine the impacts on bycatch of target and non-target species.

Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### **4.11.5 OPTION E – Implement a Pelagic Longline Gear Closure for the Entire GOM, Year Round, or During BFT Spawning Season**

Description – Prohibit the use of pelagic longline gear in the GOM, year round, or during the BFT spawning season.

Justification – Reducing dead discards of BFT by pelagic longline gear in the GOM during spawning season could contribute to stock growth. (see Figures 8 to 10 for relevant data).

Relationship to Other Management Measures – A GOM closed area that reduces dead discards could reduce the amount of dead discards that must be accounted for in the process of quota accounting. Due to the amount of fishing effort that may be displaced or eliminated, this measure should be considered in the context of all other measures under consideration in order to reduce potential socio-economic impacts. Furthermore there are other biological considerations that are relevant, as noted above in Option D.

Pros – There would be no interaction between pelagic longline gear and BFT within the closed area(s) during the time of the closed area, and therefore meaningful reduction of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning. Because it would be known in advance when and where the area would close, it may be less disruptive to fishing practices than other measures such as a catch cap.

Cons – The presence of BFT within the closed area is variable, and therefore the amount of reduction of dead discards would be variable, and may be difficult to quantify. There could be a

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reduction in fishing opportunity due to the closure that, depending upon the availability of target species, may or may not be compensated for by fishing opportunities outside the closed area. If fishing effort is displaced to an area with BFT, the closure may not result in a net decrease in BFT dead discards. It may be difficult to quantify the effects of existing closed areas due to a lack of data from within the closure area. Furthermore, it is difficult to compare different closed areas because various geographic areas fulfill different functions in the life history of BFT and other species.

### 4.12 Modify Subquota Rules

Objective – Optimize fishing opportunity and account for dead discards.

Description – Modify the FMP provisions and subsequent regulations that allocate quota among time periods and redefine the type of quota transactions that may occur.

Relationship to Other Management Measures – This type of measure is closely related to the revision of quota allocations among categories. This strategy could rely on additional flexibility for quota management instead of reallocation as a means of accounting for dead discards and optimizing fishing opportunity.

Pros – Modifications to the quota adjustment rules could provide additional flexibility and relieve some of the current constraints on accounting for discards and optimizing fishing opportunity.

Cons – Modifications to the quota adjustment rules are not likely to fully meet the objectives, given the current amount of dead discards and current quota allocations, because such changes are narrow in scope, and may not achieve the larger objectives of the current FMP.

#### 4.12.1 OPTION A – Modify General Category Sub-Period Allocations

Objective – Optimize fishing opportunity and account for dead discards.

Description - Modify the General category sub-period allocations to achieve a new seasonal distribution of allocation.

Justification – Modification of the General category sub-period allocation could better distribute the quota among seasons and geographic locations and support equitable fishing opportunities objectives.

Pros – Some fishery participants may benefit from enhanced fishing opportunities.

Cons – Some fishery participants may experience decreased fishing opportunities. It is difficult to develop a single optimal allocation scheme among seasons, given the temporal and geographic variability of BFT availability on the fishing grounds.

#### 4.12.2 OPTION B – Modify the Angling Category Percentages.

Objective – Optimize fishing opportunity and account for dead discards.

Description – Revise the allocations of the BFT Angling category quota between north and south for one or more of the defined size classes, or divide the quota into finer scale regional allocations, or split the large school and small medium fish into two quota categories.

Justification – Due to the different seasonal availability of different size classes in the two areas, revising the north/south allocations or other modifications could align fishing opportunity with

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quota and participation, and support equitable fishing opportunity objectives between the northern and southern fishery participants.

Pros - Some fishery participants may benefit from enhanced fishing opportunities.

Cons – Some fishery participants may experience decreased fishing opportunities. It is difficult to develop a single optimal allocation scheme between the north and south, given the variability of BFT size class abundance and distribution patterns. Dividing into more numerous quotas may not resolve the challenges and may pose additional challenges to monitoring the fishery.

### 4.13 Northern Albacore Tuna: Establish Quota and Rollover Provisions

Objective – Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate.

Description – Establish a requirement for an annual specification of northern albacore tuna quota and rollover provisions, requiring deduction of excess catch and roll-over of underharvest in accordance with ICCAT recommendations. Under ICCAT Recommendation 11-04, the maximum amount of underharvest that may be carried forward is 25% of the initial quota.

Justification – In 2011, ICCAT established annual TACs for 2012 and 2013 and rules regarding an unused portion or excess catch of an annual quota.

Pros - The measure could ensure continued compliance with the ICCAT recommendation.

Cons – There may be increased uncertainty in the fishery regarding the potential impacts of a domestic quota and the adequacy of the current reporting system may need to be evaluated.

### 4.14 Allow Shore-Based Angler Catch of BFT

Objective - Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate.

Description – Allow shore-based anglers to catch BFT.

Justification – Currently, shore-based anglers are not allowed to catch BFT. When BFT are available adjacent to the shoreline, shore-based anglers could be allowed to catch BFT.

Pros – Recreational anglers on shore could participate in the BFT fishery. This segment of the fishery may have little impact on the overall amount of BFT fishing effort or catch because BFT are not frequently available from the shore.

Cons – Education and enforcement regarding applicable size and retention limits could be challenging, and it could be difficult to obtain information regarding catch, because shore based anglers are currently not required to obtain a permit. It is possible that catches could go unreported. Handling of BFT from shore may be more difficult than from a vessel, and therefore post-release mortality could be high.

### 4.15 Modify Current Permit Category Rules Requiring Changes to be made within 10 Days of Issuance

Objective - Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate.

Description – Allow a vessel owner to modify the type of permit issued for a time period greater than 10 days (specific time period to be selected), provided the vessel has not fished.

Justification – The current regulation that prohibits a vessel from changing the category of permit issued after 10 days from the date of issuance may be perceived as overly restrictive and may not

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allow the flexibility to resolve the problems of a permit issued by mistake or based on an incomplete understanding of the regulations.

Pros – The measure could achieve a better balance of allowing flexibility for vessel owners and preventing circumvention of the intent of the regulation, which is to prevent fishing in more than one permit category during a fishing year.

Cons - It may be difficult to determine if a vessel fishes under the first permit issued.

### 4.16 Allow Stowage of Unauthorized Gear

Objective - Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate.

Description – A vessel with a General category permit could be allowed to have both HMS species and gear that is not authorized to capture HMS on board the vessel at the same time. For example, a vessel could fish for groundfish (Northeast Multispecies) using a trawl or gillnet, but also fish for BFT using a rod and reel on the same trip.

Justification - Under current regulations, a General category vessel may not possess HMS and any gear that is not authorized under the Consolidated HMS FMP. This measure could eliminate that restriction in order to allow a vessel greater flexibility to fish more efficiently and catch BFT when they are available.

Pro – Vessels could fish for BFT and non-BFT species on the same trip, provided BFT is only targeted with authorized gear. There could be greater efficiency, and vessels could catch BFT when they are available.

Cons – It is possible that vessels may capture BFT with unauthorized gear, such as otter-trawl, bottom-tending gillnet, or mid-water trawl. This measure could reduce the enforceability of the gear restrictions, because it may be difficult to determine whether a BFT had been caught using authorized gear or not.

### 4.17 Define and Authorize the Use of Bait Nets

Objective - Adjust other aspects of the Consolidated HMS FMP as necessary and appropriate.

Description – A vessel with a General or Angling category permit could be allowed to have on board and deploy a bait net for the capture of fish intended as bait for BFT.

Justification – Vessels operators may wish to capture baitfish on the same trip on which they intend to fish for BFT, but current gear restrictions preclude this practice. Under current regulations, fishermen must either fish for bait on a separate trip or purchase bait.

Pros – Fishermen could be allowed the flexibility to fish for baitfish on BFT targeted trip. The use of a small bait net is not likely to have any impact on BFT.

Cons – A large net or net that is not tended could potentially impact BFT, and therefore if the use of a bait net is allowed, the allowable range of bait net specifications should be defined. It may be difficult to develop a useful specification that is consistent with fishing practices.

### 5.0 Combining Management Measures – Example Suites

Measures are not mutually exclusive, and may be mixed and matched, and considered with respect to how they work in the context of other measures. In the future, such measures may be analyzed as a suite. Therefore, Tables 7 and 8 illustrate how individual management measures could be combined to address the objectives in Amendment 7. **The tables contain examples, are not comprehensive, and do not include all potential measures or objectives or combinations of them.** For all the suites of measures, **the status quo is also an option**, which is not listed in the table, but should be understood. Table 7 is organized by objective and Table 8 is organized by permit category. After the tables are descriptions of how suites of Measures and Options could work together.

## COMBINING MEASURES

**Table 7. Example Suites of Management Measures –Organized by Objective**

(For all the suites of measures, **the status quo is also an option**, which is not listed in the table, but should be understood)

|   |   |   |   |   |
|---|---|---|---|---|
| <i>Each column → represents a suite of measures</i> | Example A<br><b>Revise Quota Allocation &amp; Regional Catch Cap, Modify Pelagic Longline Closed Areas</b>  | Example B<br><b>Individual Catch Caps</b> | Example C<br><b>Revise Quota Allocation &amp; Individual Catch Caps, Modify Pelagic Longline Closed Areas</b> | Example D<br><b>Revise Quota Allocation &amp; Regional Catch Cap</b>                |
| <b>Objective 1</b>                                  | <b>Optimize Fishing Opportunity and Account for Dead Discards</b>   |   |   |   |
| Examples A, B, C, & D                               | Deduct Dead Discards (all categories)   |   |   |   |
| Quota Allocation Options                            | Revise Quota Allocations:<br><b>Two Factors:</b><br>Current Allocation (%)<br>Recent Catch (% of total)   | No Change                                 | Revise Quota Allocations:<br><b>Shift</b> Allocations Among Categories  | Revise Quota Allocations:<br><b>Create Landings Allocations</b> (less than current) |
| <b>Objective 2</b>                                  | <b>Enhance Reporting</b>  |   |   |   |
| Examples A, B, C, & D                               | General, Longline, Harpoon, and/or Angling and Charter/Headboat categories: increased reporting and/or monitoring   |   |   |   |
| <b>Objective 3</b>                                  | <b>Reduce BFT Discards and Minimize Reduction in Target Catch</b>   |   |   |   |
| Examples A, B, C, & D                               | <ul style="list-style-type: none"> <li>- Eliminate target catch requirements for Longline category</li> <li>- Reduce minimum sizes for some or all commercial categories</li> <li>- Require mandatory retention of legal-sized BFT for Longline category</li> </ul> |   |   |   |
| LL Catch Cap  | <b>Regional</b> Longline Catch Cap  | <b>Individual</b> Longline Catch          | <b>Individual</b> Longline Catch  | <b>Regional</b> Longline Catch  |

## COMBINING MEASURES

| Options                  |   | Caps (equal shares with trading)                 | Caps (shares based on history, with trading)  | Cap  |
|--------------------------|---|--|---|--|
| PLL Closed Areas Options | Modify Pelagic Longline Closed Areas                | No Modification to Pelagic Longline Closed Areas | Modify Pelagic Longline Closed Areas          | No Modification to Pelagic Longline Closed Areas |
| Tolerances               | Modify for Purse Seine and Harpoon categories       | no change  | Modify for Purse Seine and Harpoon categories | Modify for Purse Seine and Harpoon categories    |
| Hot Spots                | Support fishing industry communication of hot spots | na   | na  | Fishing industry communication of hot spots      |
| Angling Category         | Na  | Specify a max. catch limit                       | na  | Specify a max. catch limit                       |

**Table 8. Example Suites of Management Measures – Organized by Gear Type**

(For all the suites of measures, **the status quo is also an option**, which is not listed in the table, but should be understood)

|                                     | Example A   | Example B   | Example C   | Example D  |
|-------------------------------------|---|---|---|--|
| <b>Quota Category</b>               | Regional Longline Catch Cap, Modify Pelagic Longline Closed Areas, & Revise Quota Allocation (based on catch and current allocation)  | Individual Longline Catch Caps  | Individual Longline Catch Caps, Modify Pelagic Longline Closed Areas, & Revise Quota Allocations (shift among categories) | Regional Longline Catch Cap & Revise Quota Allocations (landings allocation) |
| <b>Angling and Charter/Headboat</b> | ► Revise quota allocation   | ► <b>Status Quo</b> quota allocation<br>► Specify a daily maximum catch limit | ► Revise quota allocation   | ► Revise quota allocation<br>► Specify a daily maximum catch limit           |
|                                     | ► Estimate & deduct dead discards at beginning of year;<br>► Expand scope of LPS, report landings and discards via ALRS, logbook, or other method ; observer coverage                           |   |   |  |
| <b>General</b>                      | ► Revise quota allocation   | ► <b>Status Quo</b> quota allocation  | ► Revise quota allocation   | ► Revise quota allocation  |
|                                     | ► Estimate & deduct dead discards at beginning of year;<br>► Report dead discards via Automated Landings Reporting System, logbook, or other method; observer coverage<br>► Reduce minimum size |   |   |  |

## COMBINING MEASURES

|                    |   |  |  |  |
|--------------------|---|--|--|--|
| <b>Harpoon</b>     | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ Modify large med. tolerance</li> </ul>  | <ul style="list-style-type: none"> <li>▶ <b>Status Quo</b> quota allocation</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Revise quota Allocation</li> <li>▶ Modify large med. tolerance</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Revise quota Allocation</li> <li>▶ Modify large med. tolerance</li> </ul>   |
|                    | <ul style="list-style-type: none"> <li>▶ Estimate &amp; deduct dead discards at beginning of year;</li> <li>▶ Reduce minimum size;</li> <li>▶ Report dead discards via Automated Landings Reporting System, logbook, or other method; observer coverage</li> </ul>  |  |  |  |
| <b>Purse Seine</b> | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ Modify large med. tolerance</li> </ul>  | <ul style="list-style-type: none"> <li>▶ <b>Status Quo</b> quota allocation</li> <li>▶ Allow quota trading</li> </ul>                                      | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ Allow quota Trading</li> <li>▶ Modify large med. tolerance</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ Modify large med. tolerance</li> </ul>   |
|                    | <ul style="list-style-type: none"> <li>▶ Estimate &amp; deduct dead discards at beginning of year;</li> <li>▶ Reduce minimum size;</li> <li>▶ Increase observer coverage; Report dead discards via Automated Landings Reporting System, logbook, or other method;</li> </ul>  |  |  |  |
| <b>Longline</b>    | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ <b>Modify pelagic longline closed areas</b></li> <li>▶ Catch cap by <b>Region</b></li> <li>▶ Support fishing Industry communication of hot spots</li> </ul>   | <ul style="list-style-type: none"> <li>▶ <b>Status Quo</b> quota allocation</li> <li>▶ <b>Individual catch caps</b> (equal shares with trading)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ <b>Modify pelagic longline closed areas</b></li> <li>▶ <b>Individual catch caps</b> (shares based on history, with trading)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> <li>▶ Catch cap by <b>region</b></li> <li>▶ Support fishing industry communication of hot spots</li> </ul> |
|                    | <ul style="list-style-type: none"> <li>▶ Estimate &amp; deduct dead discards at beginning of year;</li> <li>▶ Eliminate target catch requirements;</li> <li>▶ Require mandatory retention of legal-sized BFT</li> <li>▶ Reduce minimum size</li> <li>▶ Increased observer coverage, electronic monitoring, or VMS reporting of dead discards</li> </ul> |  |  |  |
| <b>Trap</b>        | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> </ul>   | <ul style="list-style-type: none"> <li>▶ <b>Status Quo</b> quota Allocation</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Revise quota allocation</li> </ul>  |
|                    | <ul style="list-style-type: none"> <li>▶ Deduct estimate of dead discards at beginning of year</li> </ul>   |  |  |  |
| <b>Reserve</b>     | NA  | NA   | NA   | Allocation increased   |



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### 5.1 Description of Combined Management Measures Working Together

#### 5.1.1 Example A

This description of an example suite of measures is based upon Example A in Tables 7 and 8 above. At the beginning of the fishing year, for all quota categories, the best available estimate of dead discards or a proxy for dead discards could be deducted from the base allocations. The General, Angling, Charter/Headboat, Purse Seine, Longline, and Harpoon categories, which collectively land the majority of BFT, could be subject to enhanced reporting requirements. The reporting measures could be designed for the specific permit categories, which currently have different reporting requirements. The measures could rely on non-paper reporting, utilizing current technology (Automated Landings Reporting System (ALRS), Vessel Monitoring Systems (VMS)), or selection of particular categories for logbook completion. For the Angling category, an incentive system could be developed to increase compliance with current reporting requirements (the ALRS). Observer coverage may be expanded to cover handgear fisheries or increased for the Longline and Purse Seine category.

The current pelagic longline target catch requirements could be eliminated and BFT catch caps for the Longline category could be implemented by region. A catch cap by region would impact only defined geographic areas within the region where historically, the bycatch was concentrated. For example, when NMFS projects that 80% of the cap for a region has been caught, the use of pelagic longline gear could be prohibited within a particular sub-area of the region that has been defined, but fishing outside the sub-area could continue. By restricting fishing rather than completely prohibiting fishing within the area, this method could allow more fishing opportunity and may result in a better balance between reduction of dead discards and maintenance of fishing opportunities for target species (i.e., swordfish and/or BAYS tunas). The amount of BFT allocated to a specific region could take into account the effectiveness of time/area closures and gear restrictions in that area. An associated measure could be the development of an industry-based BFT avoidance system in which the Longline category voluntarily provides real-time BFT catch and location data through e-mails sent via VMS units. A fishing industry organization or a third party such as an academic or research organization could compile the provided information and email the locations of “hotspots” back to the PLL fleet. There could be mandatory retention of legal-sized BFT for the Longline category.

Quota allocations could be revised based upon current allocation and catch, which, depending upon the weight of each factor, could determine the revised allocation. The purpose of reallocation could be to account for anticipated dead discards and further align the quota with updated catch levels. In this example, due to the influence of recent catch, the Longline and Angling categories could have an increased allocation, while the General, Purse Seine, and Harpoon categories could have a decreased allocation. Because the intent of reallocation could be principally to account for dead discards, and not provide new fishing opportunities, categories with an increased allocation may be subject to a cap on landings. The total amount of dead discards accounted for under this measure would depend upon the weighting of the two factors. Revised pelagic longline closed areas may reduce dead discards and mitigate the magnitude of changes to current allocations that may be required to account for anticipated dead discards. The current minimum size for BFT for the commercial fishery may be reduced in order to mitigate

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some of the lost fishing opportunity associated with the reductions in quota for certain categories, and reduce regulatory discards. The large medium tolerance for the Purse Seine and/or Harpoon categories could also be modified.

A longline set that catches an atypically large amount of BFT, could be subject to different restrictions than lesser, more routine amounts of catch. An atypical set could be defined for each geographic area (e.g., an amount of BFT that is in the 90<sup>th</sup> percentile of BFT catch per set for the region). A portion or all of this catch could be attributed toward the Reserve category, or an amount that had been set aside from the Longline category quota for this purpose.

### 5.1.2 Example B

This description of an example suite of measures is based upon Example B in Tables 7 and 8 above. At the beginning of the fishing year, for all quota categories, the best available estimate of dead discards or a proxy for dead discards could be deducted from the base allocations. The General, Angling, Charter/Headboat, Purse Seine, Longline, and Harpoon categories, which collectively land the majority of BFT, could be subject to enhanced reporting requirements. The reporting measures could be designed for the specific permit categories, which currently have different reporting requirements. The measures could rely on non-paper reporting, utilizing current technology (ALRS, VMS), or selection of particular categories for logbook completion. For the Angling category, an incentive system could be developed to increase compliance with current reporting requirements (the ALRS). Observer coverage may be expanded to cover handgear fisheries or increased for the Longline and Purse Seine category.

The current pelagic longline target catch requirements could be eliminated and individual catch caps for pelagic longline vessels could enable trading of quota as necessary to align allocations with catch among vessels in the Longline and Purse Seine categories (in either direction). Individual catch caps could be expressed as a portion of the current Longline quota. The current allocations in place for all categories may not be modified. When an individual vessel catches its Individual Catch Cap, it could be required to stop fishing regardless of target species. Each vessel could be allocated the same amount of quota. Equal catch caps for all Longline category vessels, rather than a customized amount of catch share based upon vessel histories, would not rely on historical data, and therefore avoid the issues associated with verification and accuracy of historical data (i.e., data that was collected for a different objective), the associated administrative burden, and the controversy of developing a historical formula. This allocation scheme could achieve the objective that vessels which have historically caught large amounts of BFT are not ‘rewarded’ for such catch. Allocation of equal shares may create a more equitable situation if a market for BFT quota is created, and mitigate some of the concerns associated with quota shares. There could be mandatory retention of legal-sized BFT for the fleet.

The current minimum size for BFT for the commercial fishery could be reduced in order to reduce regulatory discards, and mitigate some of the lost fishing opportunity associated with catch caps.

A longline set that catches an atypically large amount of BFT, could be subject to different restrictions than lesser, more routine amounts of catch. An atypical set could be defined for each

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geographic area (e.g., an amount of BFT that is in the 90<sup>th</sup> percentile of BFT catch per set). A portion or all of this catch could be attributed toward the Reserve category, or an amount that had been set aside from the Longline category quota for this purpose.

### 5.1.3 Example C

This description of an example suite of measures is based upon Example C in Tables 7 and 8 above. At the beginning of the fishing year, for all quota categories, the best available estimate of dead discards or a proxy for dead discards could be deducted from the base allocations. The General, Angling, Charter/Headboat, Purse Seine, Longline, and Harpoon categories, which collectively land the majority of BFT, could be subject to enhanced reporting requirements. The reporting measures could be designed for the specific permit categories, which currently have different reporting requirement. The measures could rely on non-paper reporting, utilizing current technology (ALRS, VMS), or selection of particular categories for logbook completion. Observer coverage may be expanded to cover handgear fisheries or increased for the Longline and Purse Seine category.

The current pelagic longline target catch requirements could be eliminated and individual catch caps ICC for Longline category vessels could be implemented to limit catch. Trading quota could provide the ability to align allocations with catch among vessels in the Longline and Purse Seine categories (in either direction). Individual catch caps could be expressed as a portion of the current Longline quota, based upon historical catch, or using historical catch to adjust equal shares. The allocation could closely reflect historical catch, and therefore, future fishing opportunity may be similar to historical catch, or a mathematical formula could be developed in order to not disadvantage vessels that have not caught much BFT in the past. There could be mandatory retention of legal-sized BFT for the PLL fleet.

Quota allocations may be revised based upon shifting quota among categories. The purpose of revised allocation could be to account for anticipated dead discards and align the quota with recent levels of catch. In this example, quota could be shifted from the Purse Seine to the Longline category. Because the intent of revised allocation would be principally to account for dead discards, and not provide new fishing opportunities, the Longline category could be subject to a cap on landings. The total amount of dead discards accounted for under this measure would depend upon the amount of quota reallocated.

Revised pelagic longline closed areas may reduce dead discards and mitigate the magnitude of changes to current allocations that may be required to account for anticipated discards. The current minimum size for BFT for the commercial fishery could be reduced in order to reduce regulatory discards and mitigate some of the lost fishing opportunity associated with the reallocation of quota. The large medium tolerance for the Purse Seine and/or Harpoon categories could also be modified. For the recreational fishery, a maximum daily catch limit could be set in order to decrease the number of fish caught and discarded.

A longline set that catches an atypically large amount of BFT, could be subject to different restrictions than lesser, more routine amounts of catch. An atypical set could be defined for each geographic area (e.g., an amount of BFT that is in the 90<sup>th</sup> percentile of BFT catch per set). A

## COMBINING MEASURES

portion or all of this catch could be attributed toward the Reserve category, or an amount that had been set aside from the Longline category quota for this purpose.

### 5.1.4 Example D

This description of an example suite of measures is based upon Example D in Tables 7 and 8 above. At the beginning of the fishing year, for all quota categories, the best available estimate of dead discards or a proxy for dead discards could be deducted from the base allocations. The General, Angling, Charter/Headboat, Purse Seine, and Longline categories, which collectively land the majority of BFT, could be subject to enhanced reporting requirements. The reporting measures would be designed for the specific permit categories, which currently have different reporting requirements. The measures could rely on non-paper reporting, utilizing current technology (ALRS, VMS), or selection of particular categories for logbook completion. For the Angling category, an incentive system could be developed to increase compliance with current reporting requirements (the ALRS). Observer coverage may be expanded to cover handgear fisheries or increased for the Longline or Purse Seine category.

The current pelagic longline target catch requirements could be eliminated and BFT catch caps for the Longline category could be implemented by region. In contrast to Example A, the entire region could close to the use of pelagic longline gear, when NMFS projects attainment of the catch cap. The amount of BFT allocated to a specific region could take into account the effectiveness of time/area closures and gear restrictions in that area. An associated measure could be the development of an industry-based BFT avoidance system in which the Longline category vessels voluntarily provide real-time BFT catch and location data through e-mails sent via VMS units. A third party such as an academic or research organization could compile the provided information and email the locations of “hotspots” back to the fleet. There could be mandatory retention of legal-sized BFT for the Longline category.

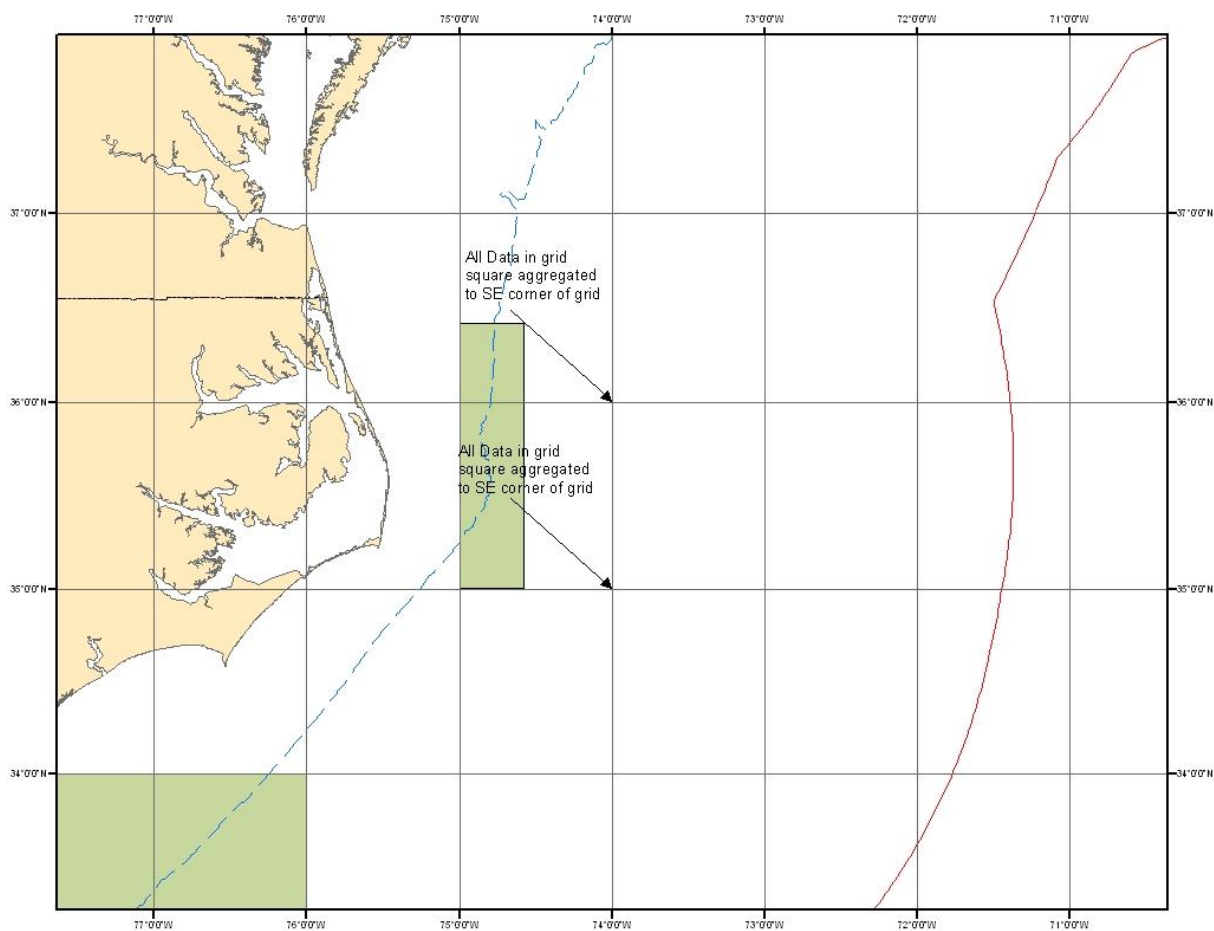
Quota allocations may be revised based the current allocation and a desired level of landings that could take into account anticipated dead discards. The revised quota could be a landings quota, and could be less than the current quota for all categories in order to take into account anticipated dead discards. The Reserve category could increase and be used to account for dead discards. The current minimum size for BFT for the commercial fishery could be reduced in order to reduce regulatory discards and mitigate some of the lost fishing opportunity associated with the revised quota allocations. The large medium tolerance for the Purse Seine and/or Harpoon categories could also be modified. For the recreational fishery, a maximum daily catch limit could be set in order to decrease the number of fish caught and discarded.

A longline set that catches an atypically large amount of BFT, could be subject to different restrictions than lesser, more routine amounts of catch. An atypical set could be defined for each geographic area (e.g., an amount of BFT that is in the 90<sup>th</sup> percentile of BFT catch per set). A portion or all of this catch could be attributed toward the Reserve category, or an amount that had been set aside from the Longline category quota for this purpose.

## CHARTS

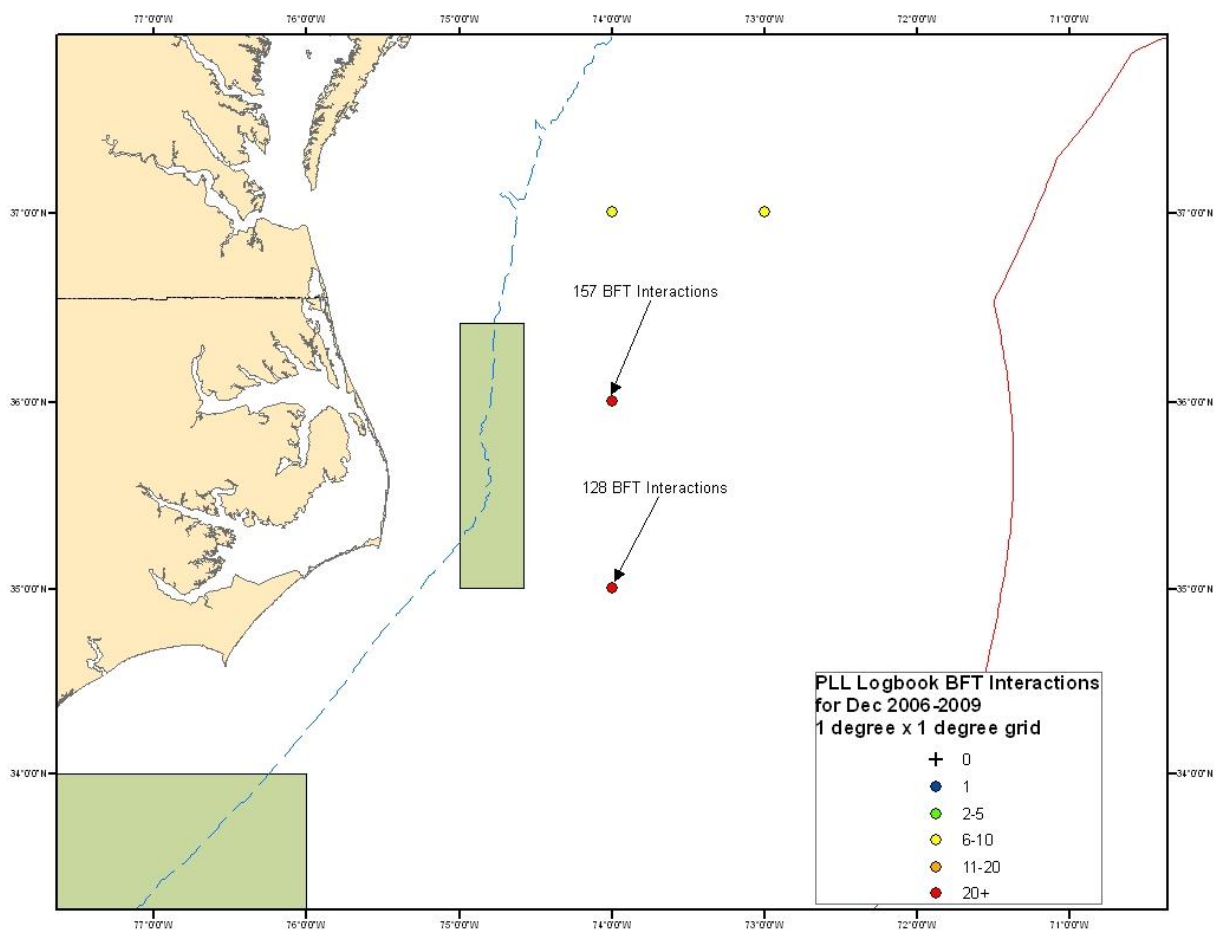
**Figure 1. Pelagic Longline Gear Interactions with BFT - Logbook Data**

This chart is an introduction to the information that follows. This chart depicts the Cape Hatteras Special Research Area. The whole chart is divided up into one degree square grids, which is the scale at which the data was aggregated. The arrows point to the southeast corner of two particular grids, to indicate that information pertaining to a particular grid will be shown in the SE corner of the grid.



## CHARTS

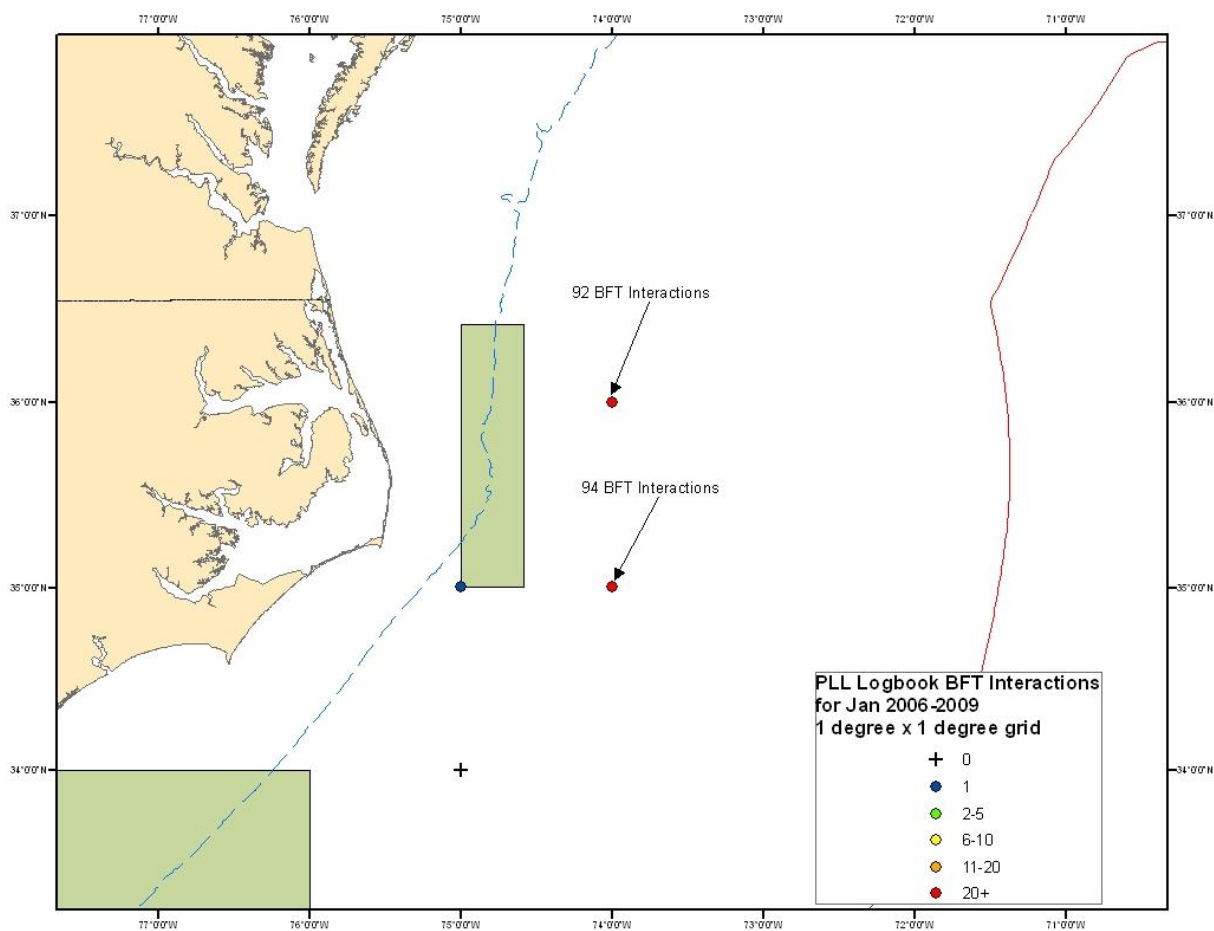
**Figure 2.** PLL interactions with BFT for a four year period (2006 to 2009) for the month of December (Cape Hatteras Special Research Area)



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

**Figure 3. PLL interactions with BFT for a four year period (2006 to 2009) for the month of January (Cape Hatteras Special Research Area)**

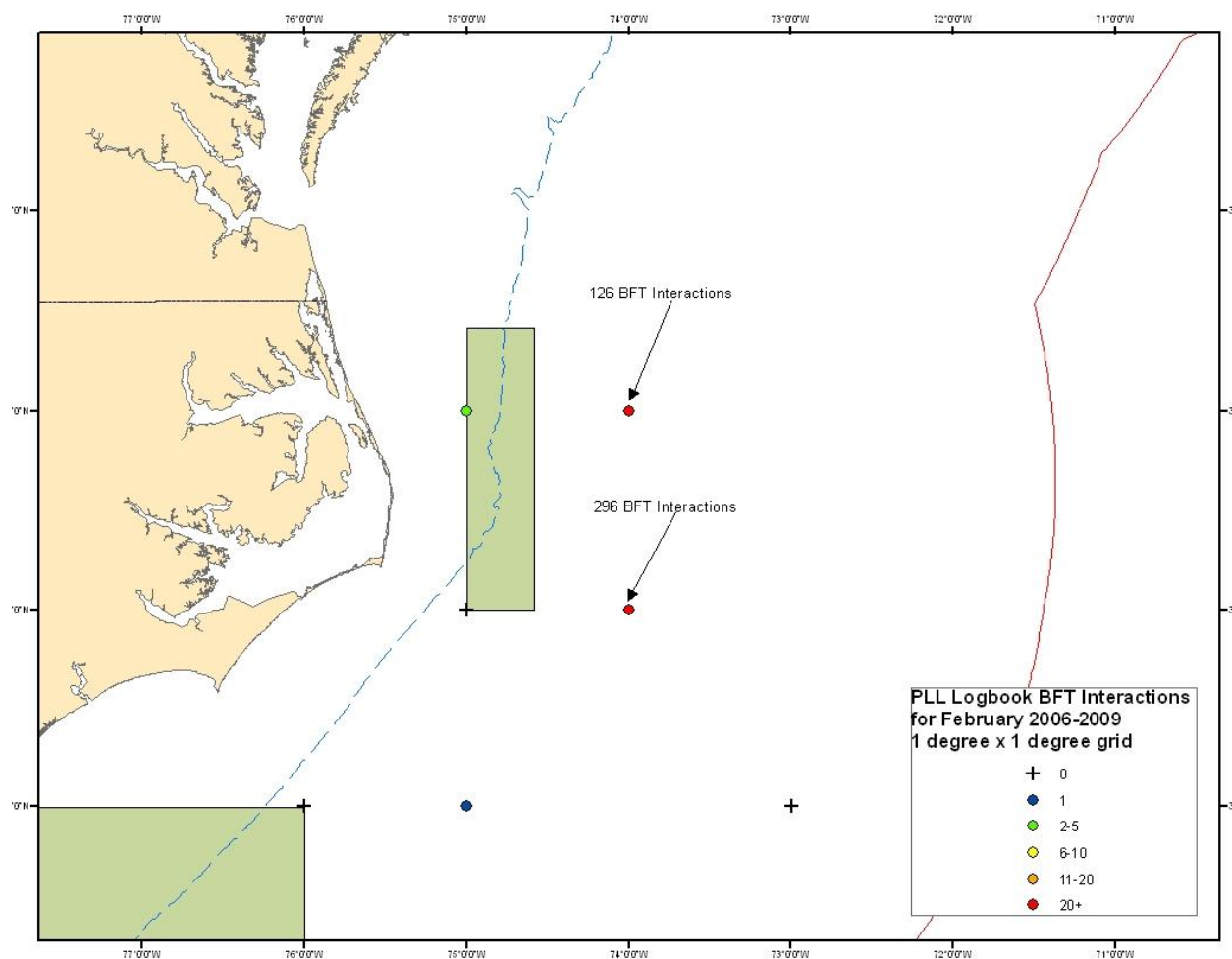


Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.



## CHARTS

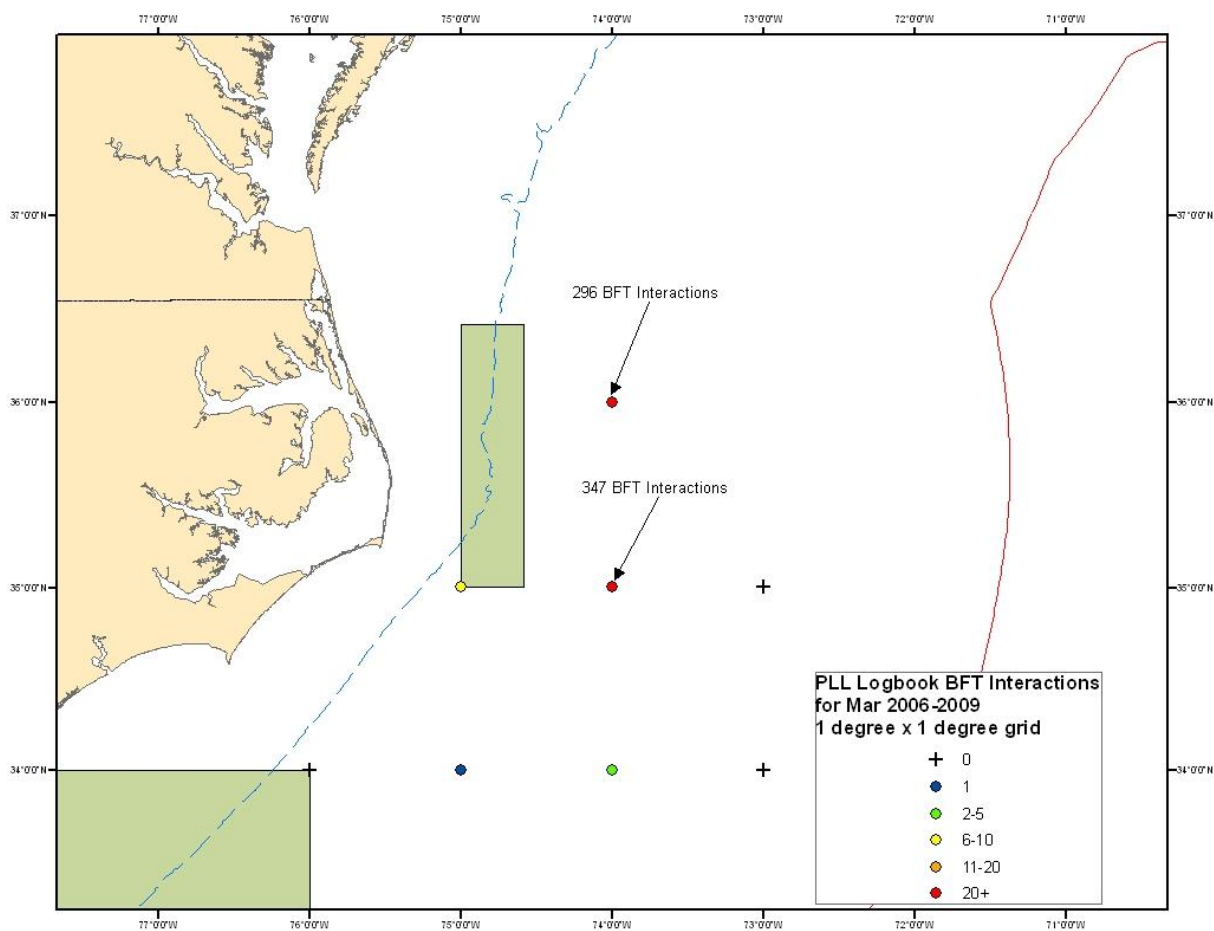
**Figure 4. PLL interactions with BFT for a four year period (2006 to 2009) for the month of February (Cape Hatteras Special Research Area)**



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

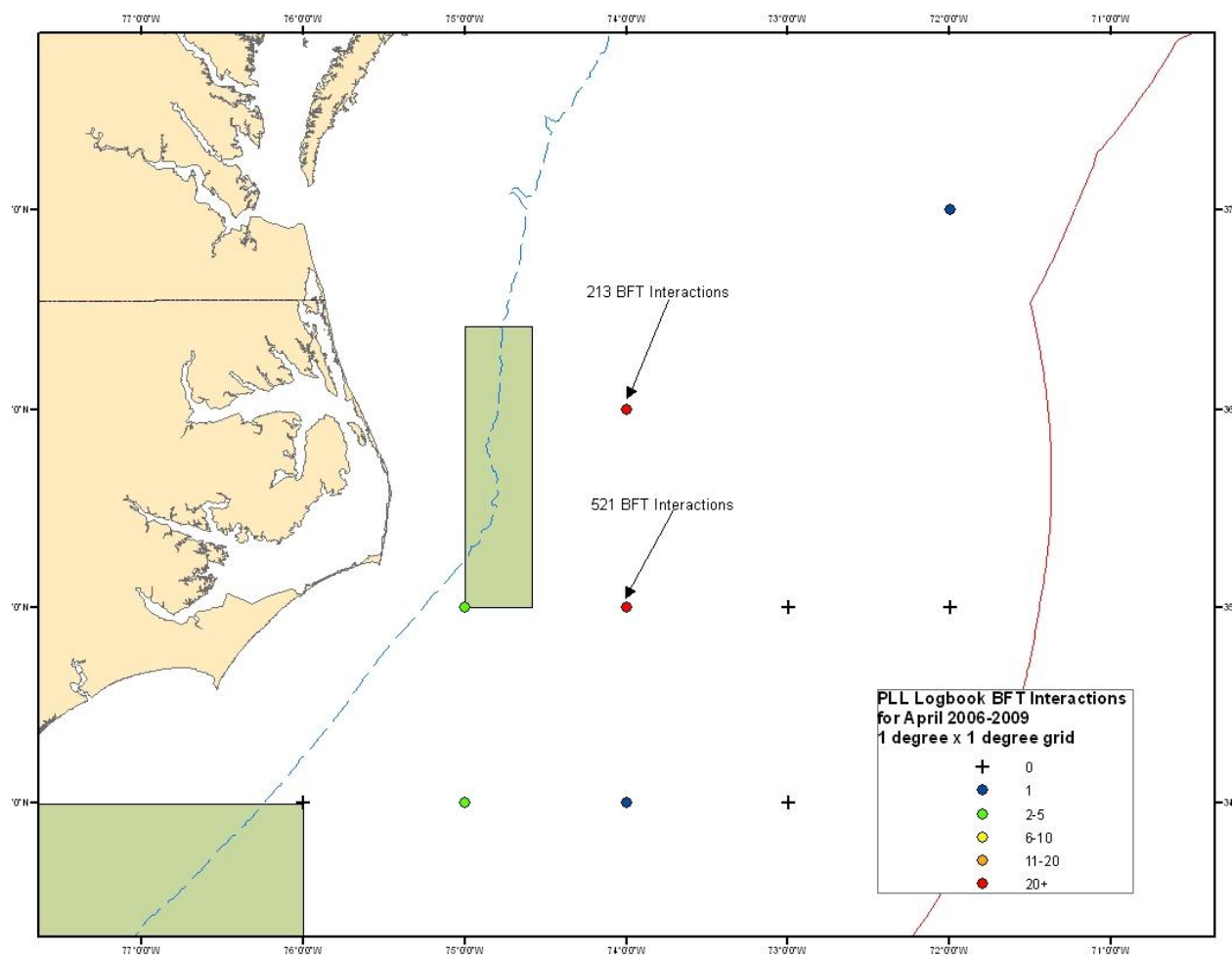
**Figure 5. PLL interactions with BFT for a four year period (2006 to 2009) for the month of March (Cape Hatteras Special Research Area)**



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

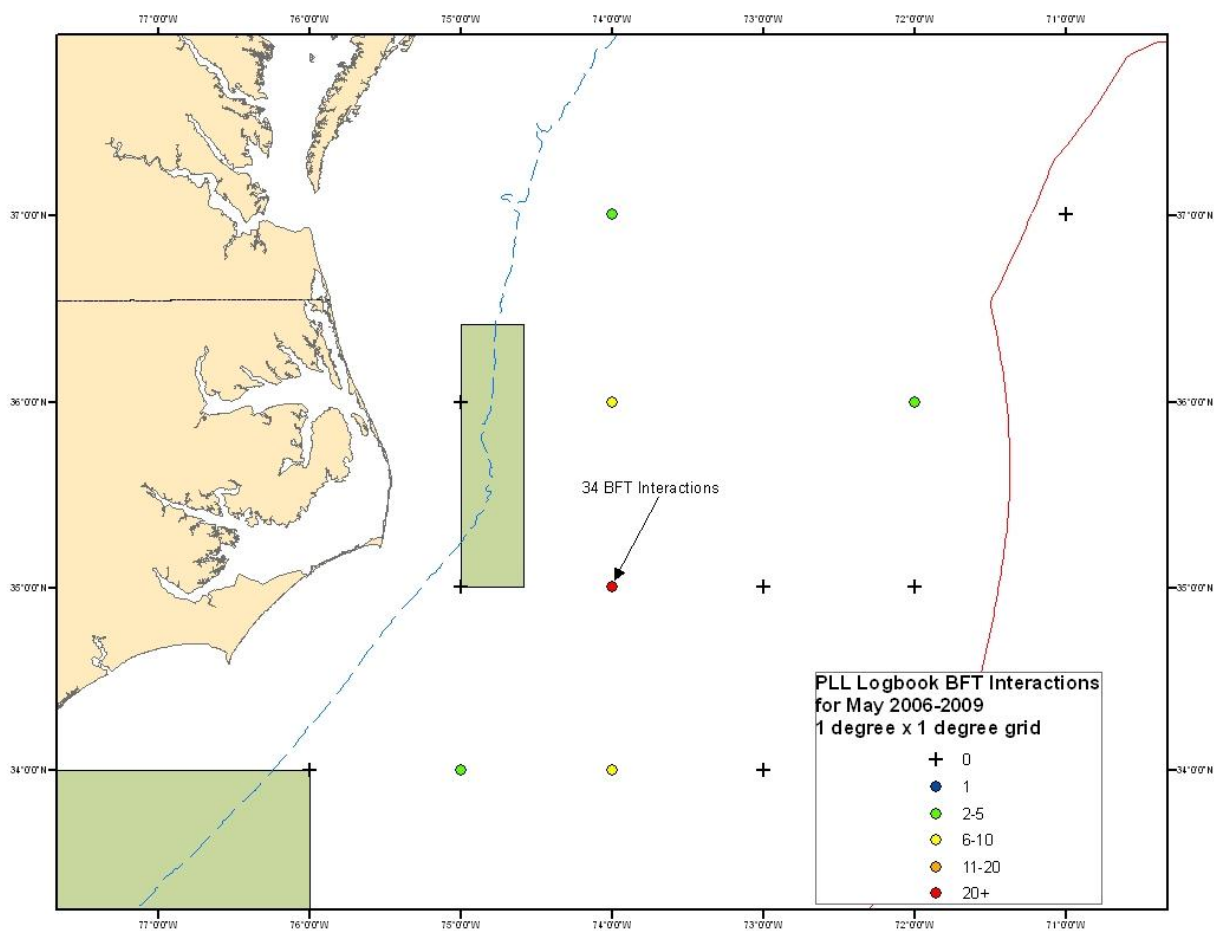
**Figure 6. PLL interactions with BFT for a four year period (2006 to 2009) for the month of April (Cape Hatteras Special Research Area)**



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

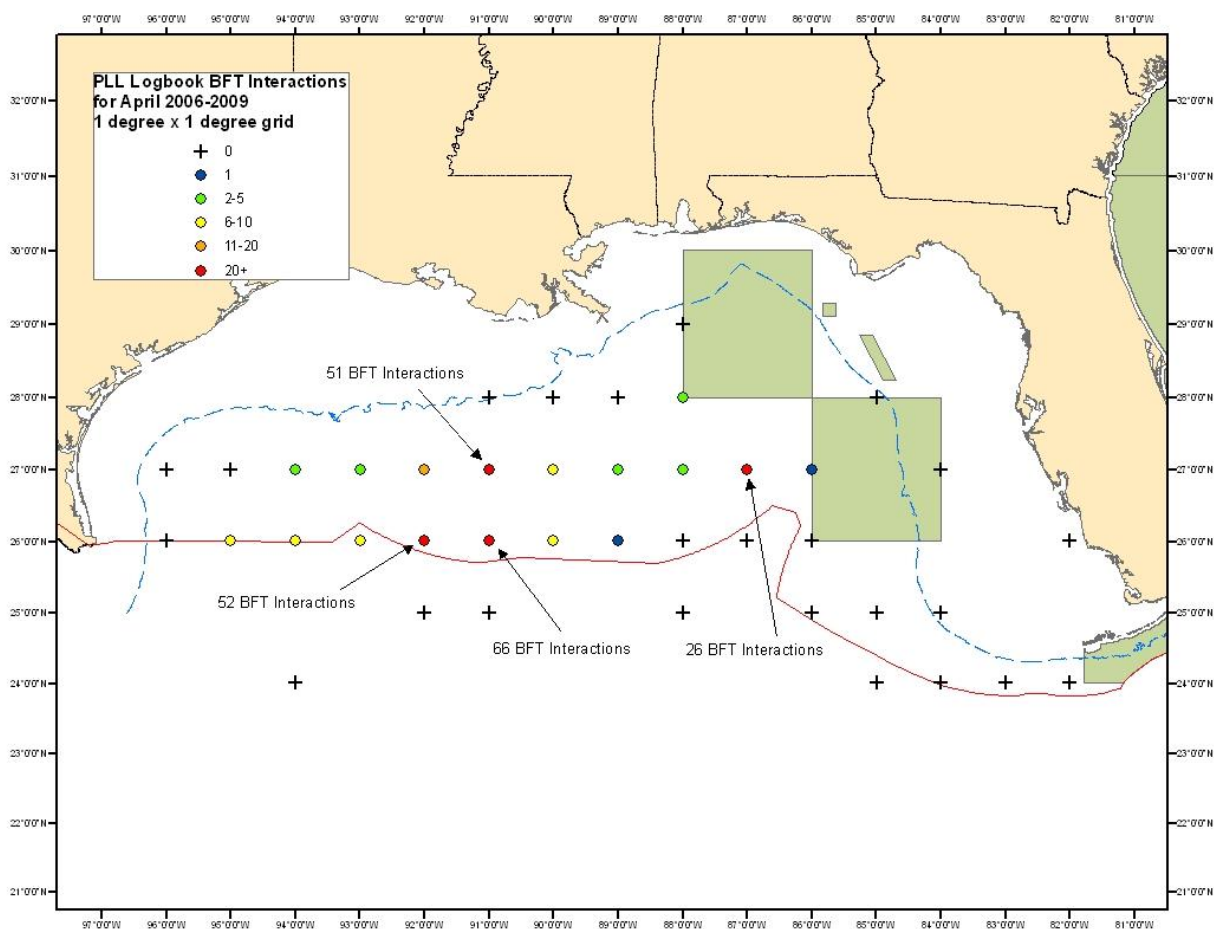
**Figure 7. PLL interactions with BFT for a four year period (2006 to 2009) for the month of May (Cape Hatteras Special Research Area)**



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

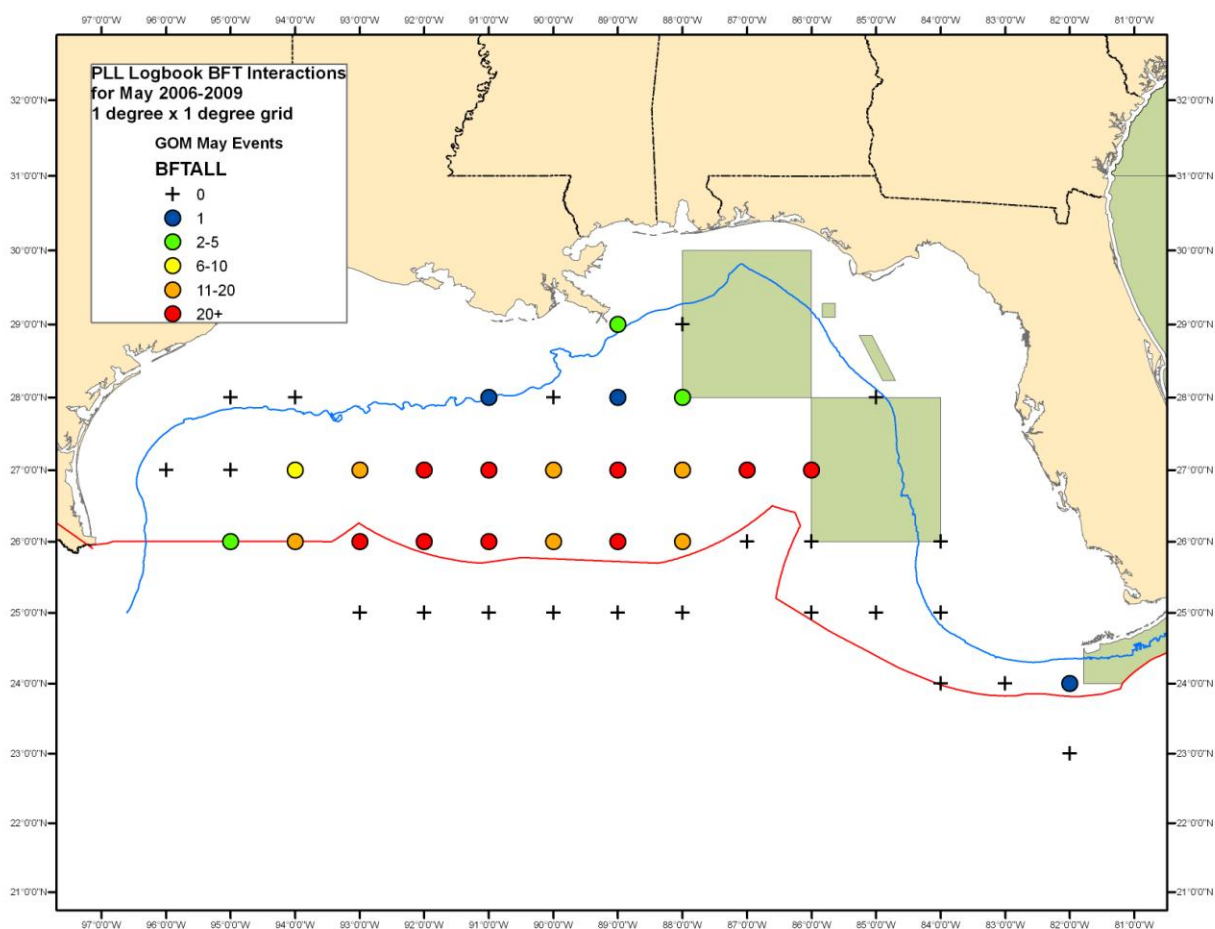
**Figure 8.** PLL interactions with BFT in the Gulf of Mexico for a four year period (2006 to 2009) for the month of April



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

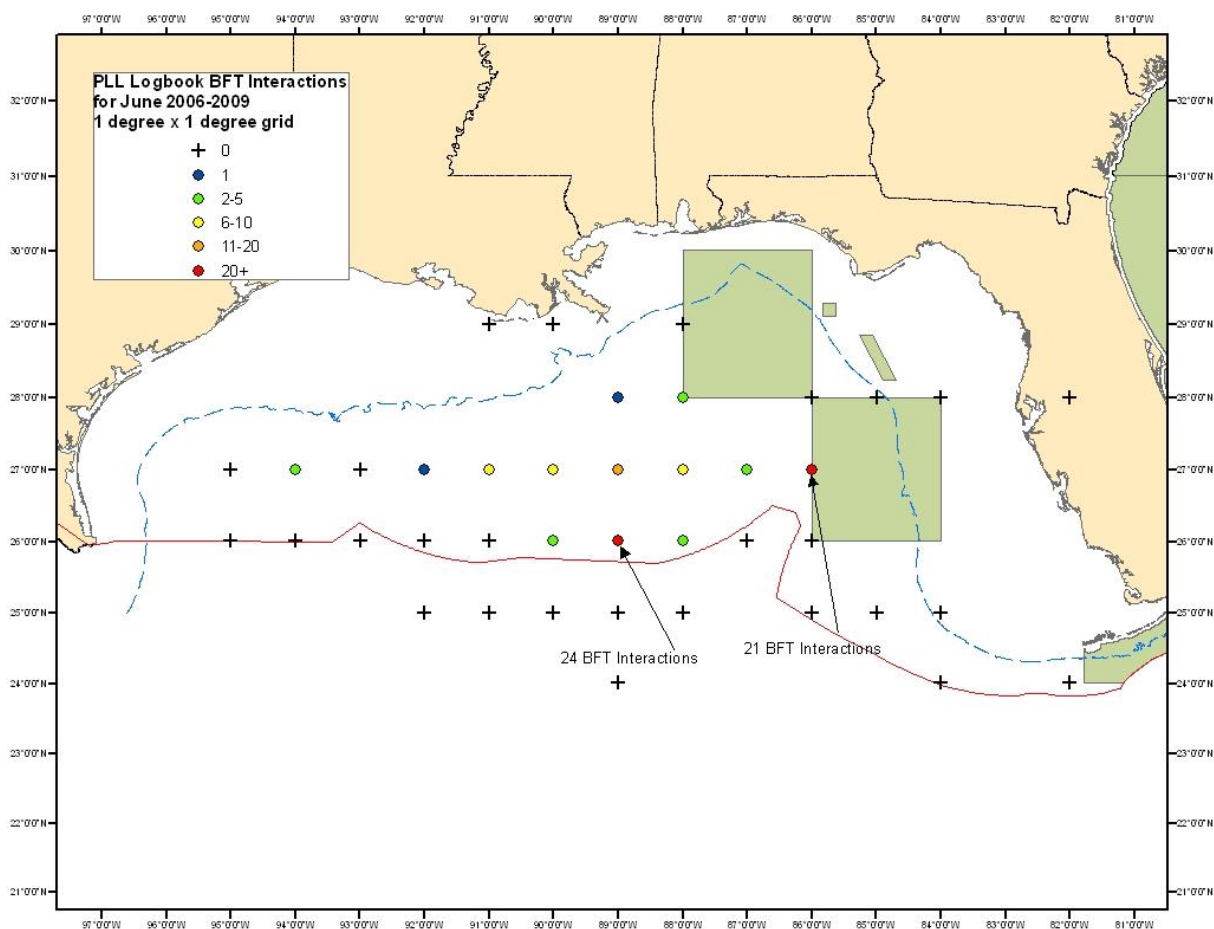
**Figure 9.** PLL interactions with BFT in the Gulf of Mexico for a four year period (2006 to 2009) for the month of May



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

**Figure 10.** PLL interactions with BFT in the Gulf of Mexico for a four year period (2006 to 2009) for the month of June

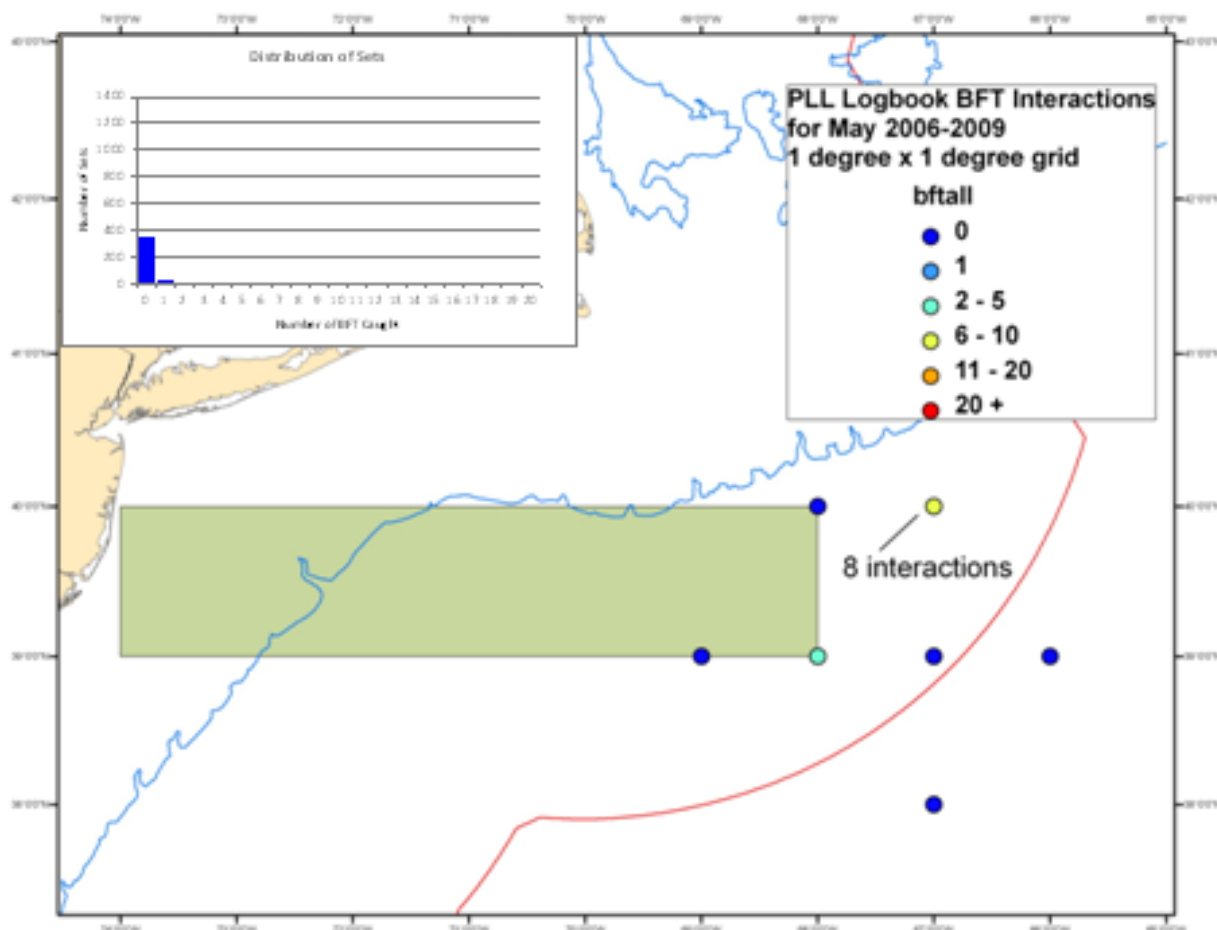


Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.



## CHARTS

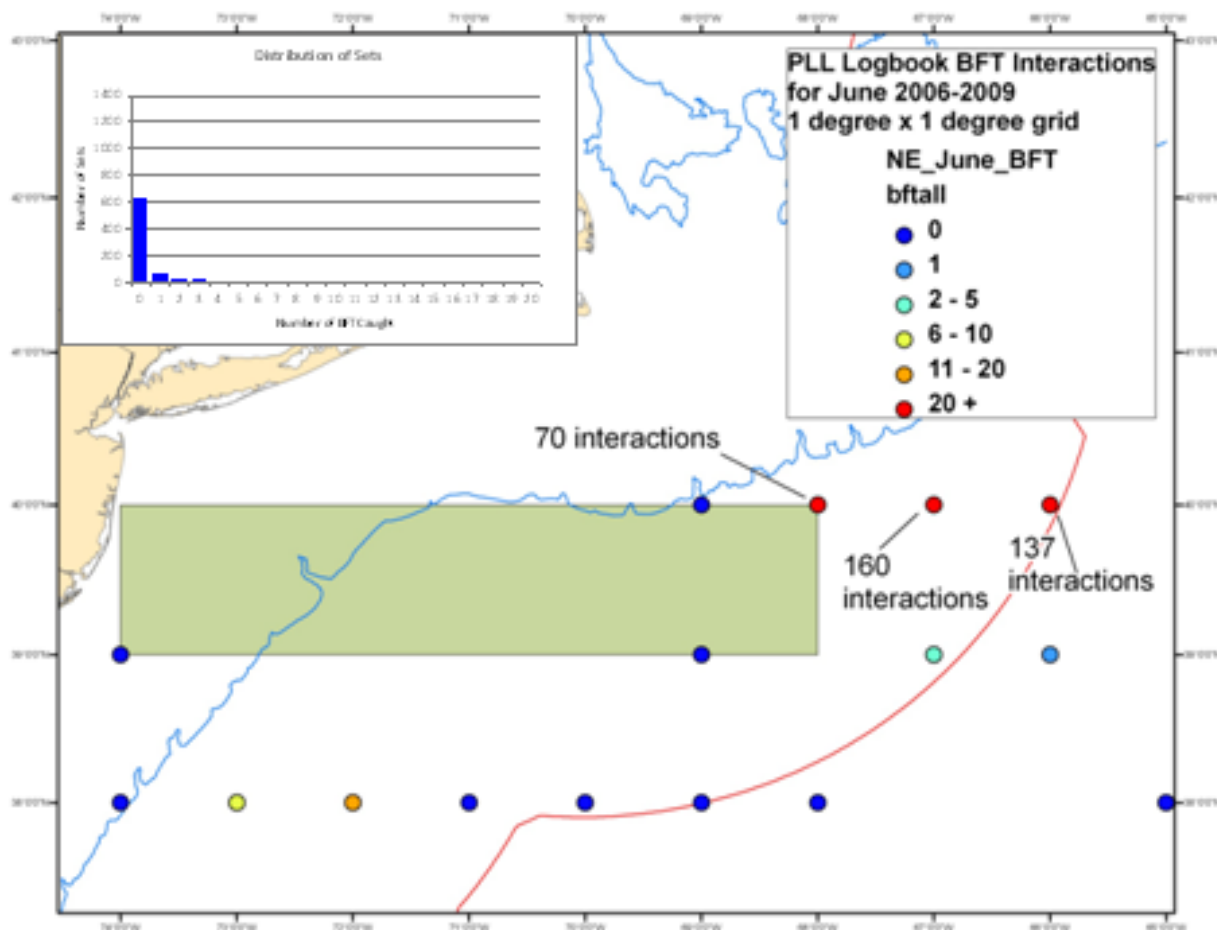
**Figure 11.** PLL interactions with BFT in the MAB and NEC statistical reporting areas for a four year period (2006 to 2009) for the month of May.



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

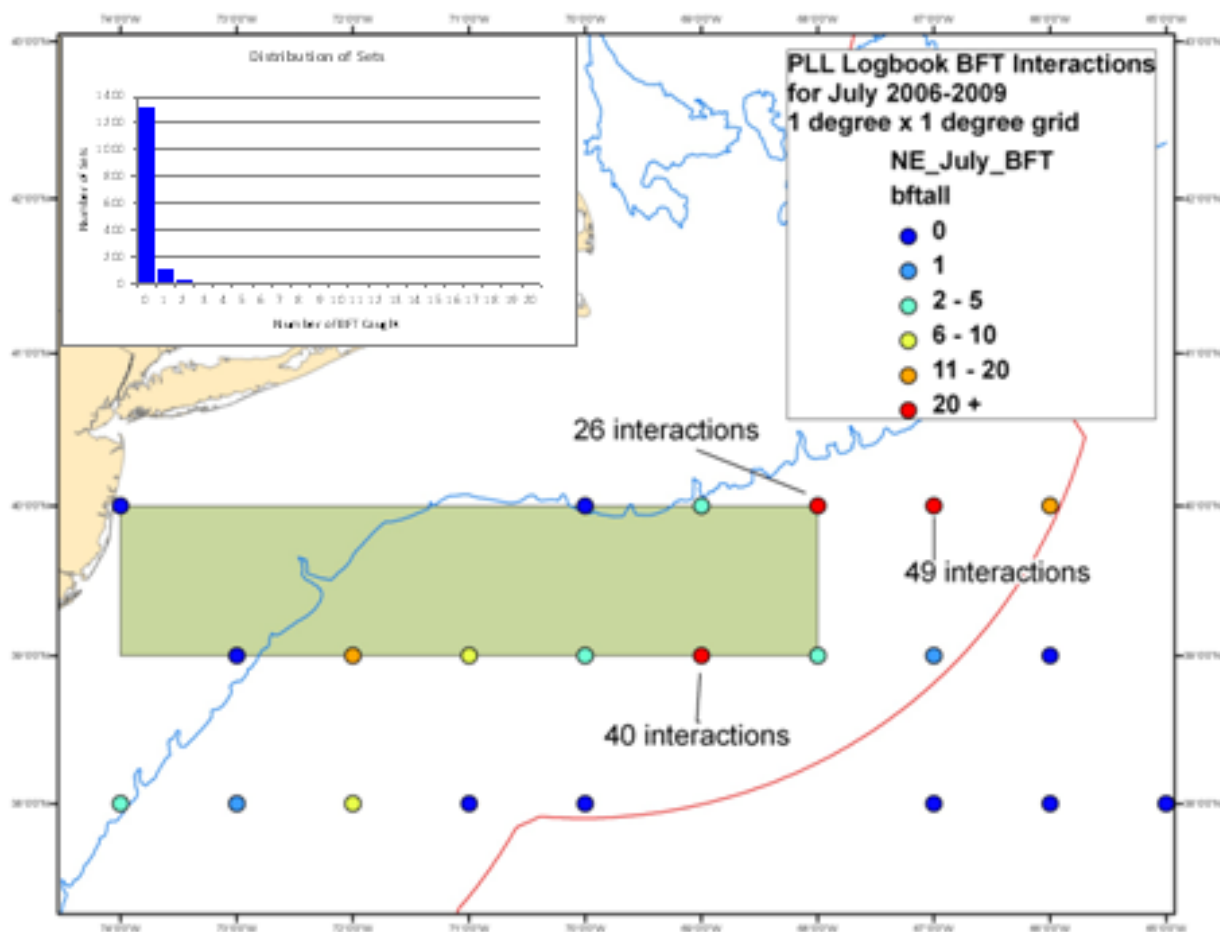
**Figure 12.** PLL interactions with BFT in the MAB and NEC statistical reporting areas for a four year period (2006 to 2009) for the month of June.



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.

## CHARTS

**Figure 13.** PLL interactions with BFT in the MAB and NEC statistical reporting areas for a four year period (2006 to 2009) for the month of July.



Circles indicate the location of the southeast corner of one-degree square grids from which the data was aggregated.